MacDirectory

THE GUIDE FOR CREATIVE MINDS

DIGITAL LIFESTYLE > CLAUDIA SCHIFFER > REVIEWS > INTERVIEWS > NEWS > TECHNOLOGY > TRENDS > LARGEST MAC OS BUYER'S GUIDE

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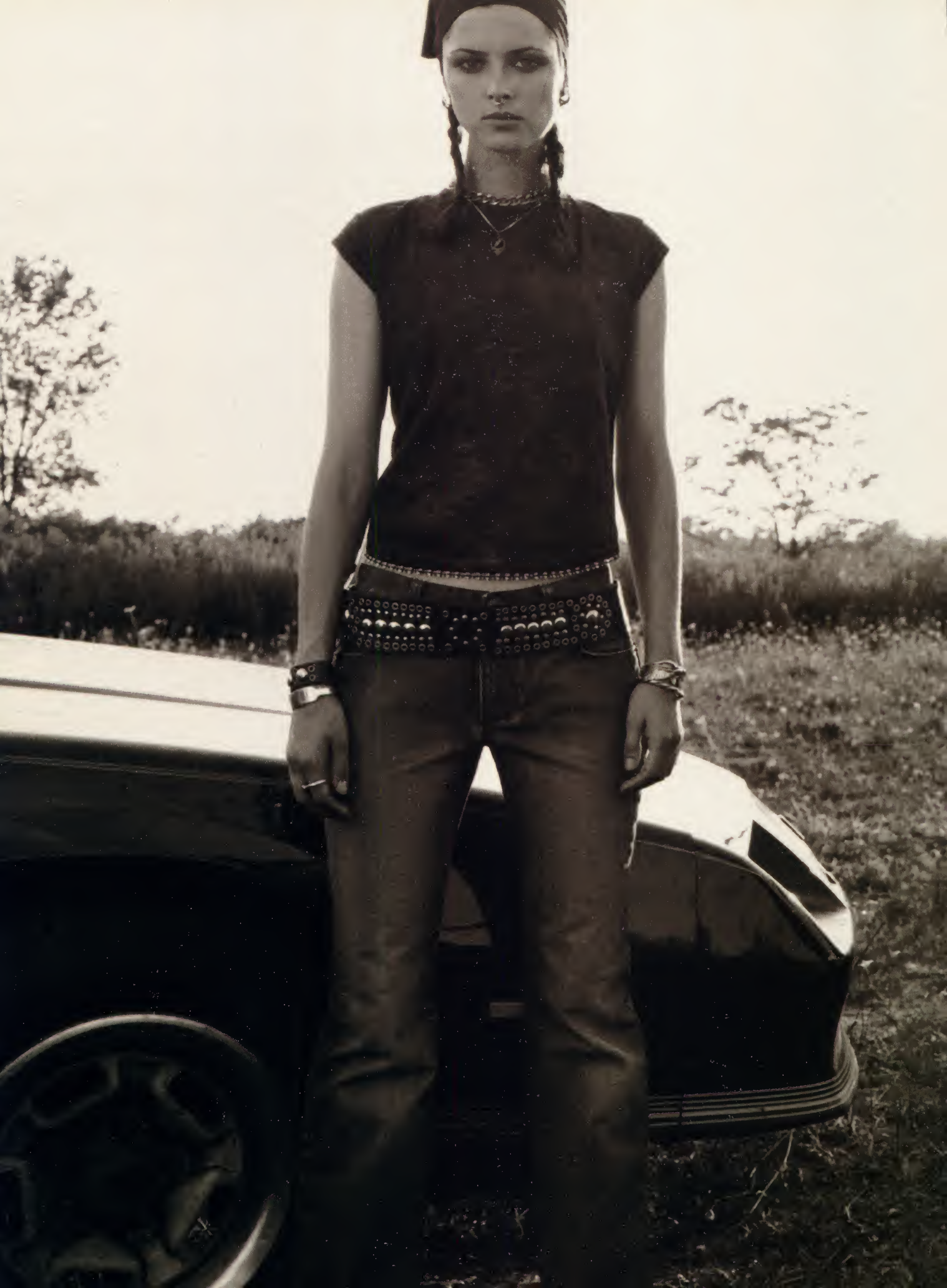

CALVIN KLEIN
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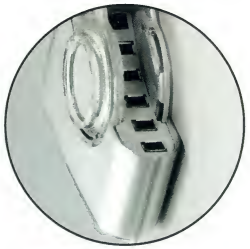
Speed Chic — compact symmetry

-Port 6

that gives your desk beauty and space, and stretches your computer's



With a design that spares and sharpens any desk area, the hub offers compact symmetry with graceful savoir faire. You'll be dazzled by its capabilities, and you'll love what it does for your configuration's looks.

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ach.

FireWire 6-Port Hub

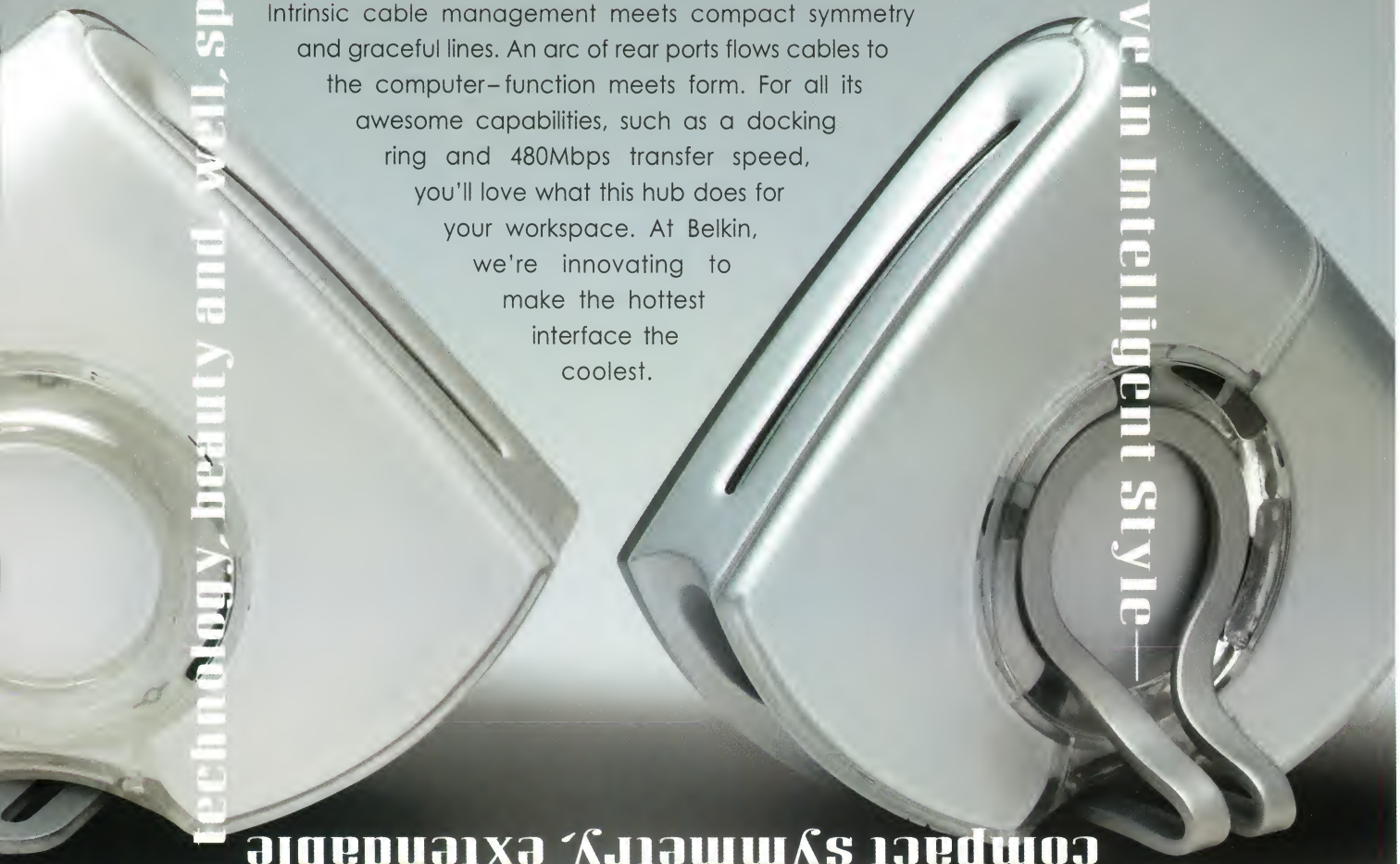
Six

From BELKIN

The Next Wave in Intelligent Style—

technology, beauty and, well, speed.

Intrinsic cable management meets compact symmetry and graceful lines. An arc of rear ports flows cables to the computer–function meets form. For all its awesome capabilities, such as a docking ring and 480Mbps transfer speed, you'll love what this hub does for your workspace. At Belkin, we're innovating to make the hottest interface the coolest.



compact symmetry, extendable

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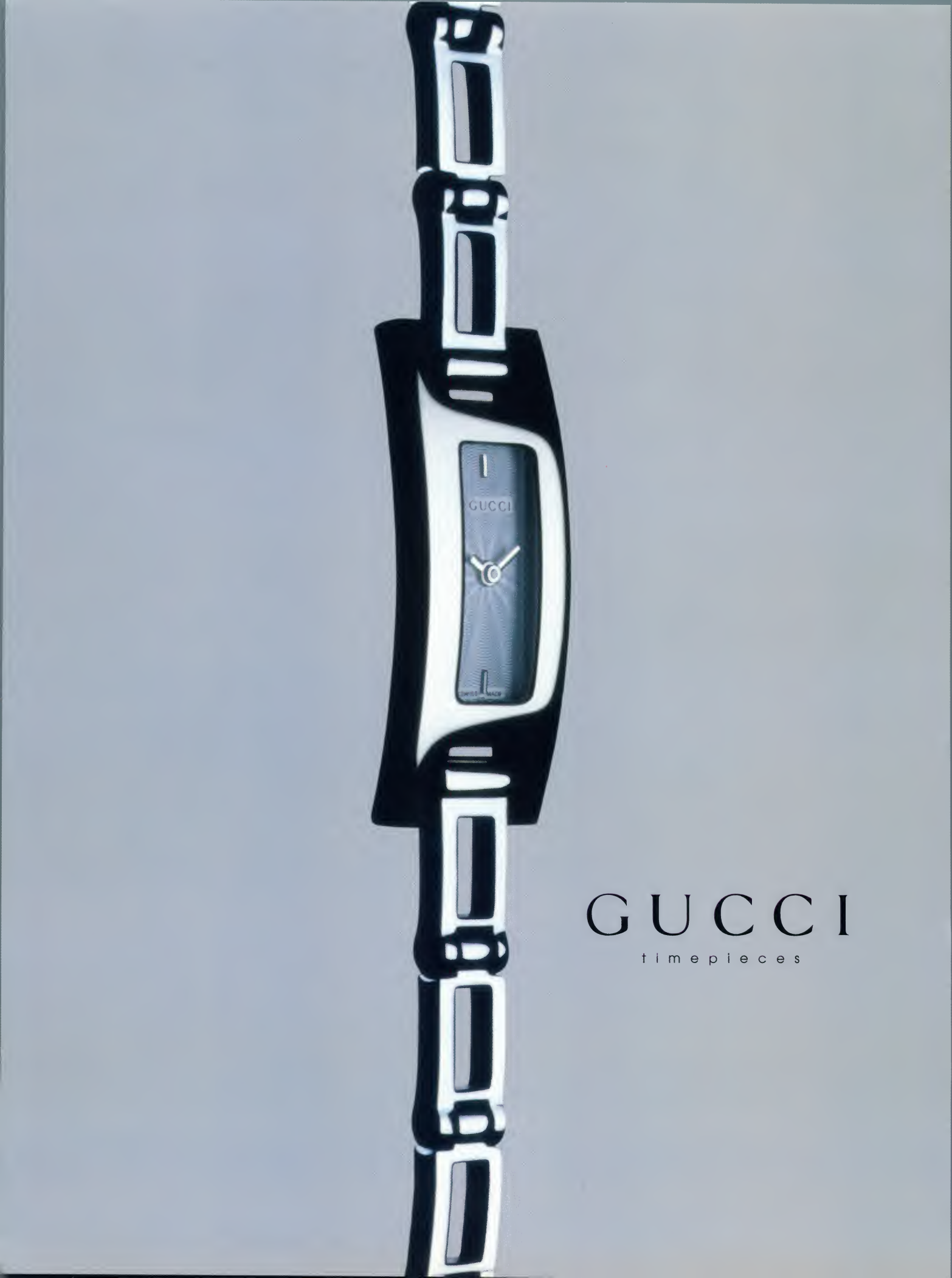
belkin.com



GUCCI

timepieces

APPLE NEWS
APPLE SURVEYS > THE VOTES HAVE ARRIVED 48
APPLE TALK AND NEWS 58

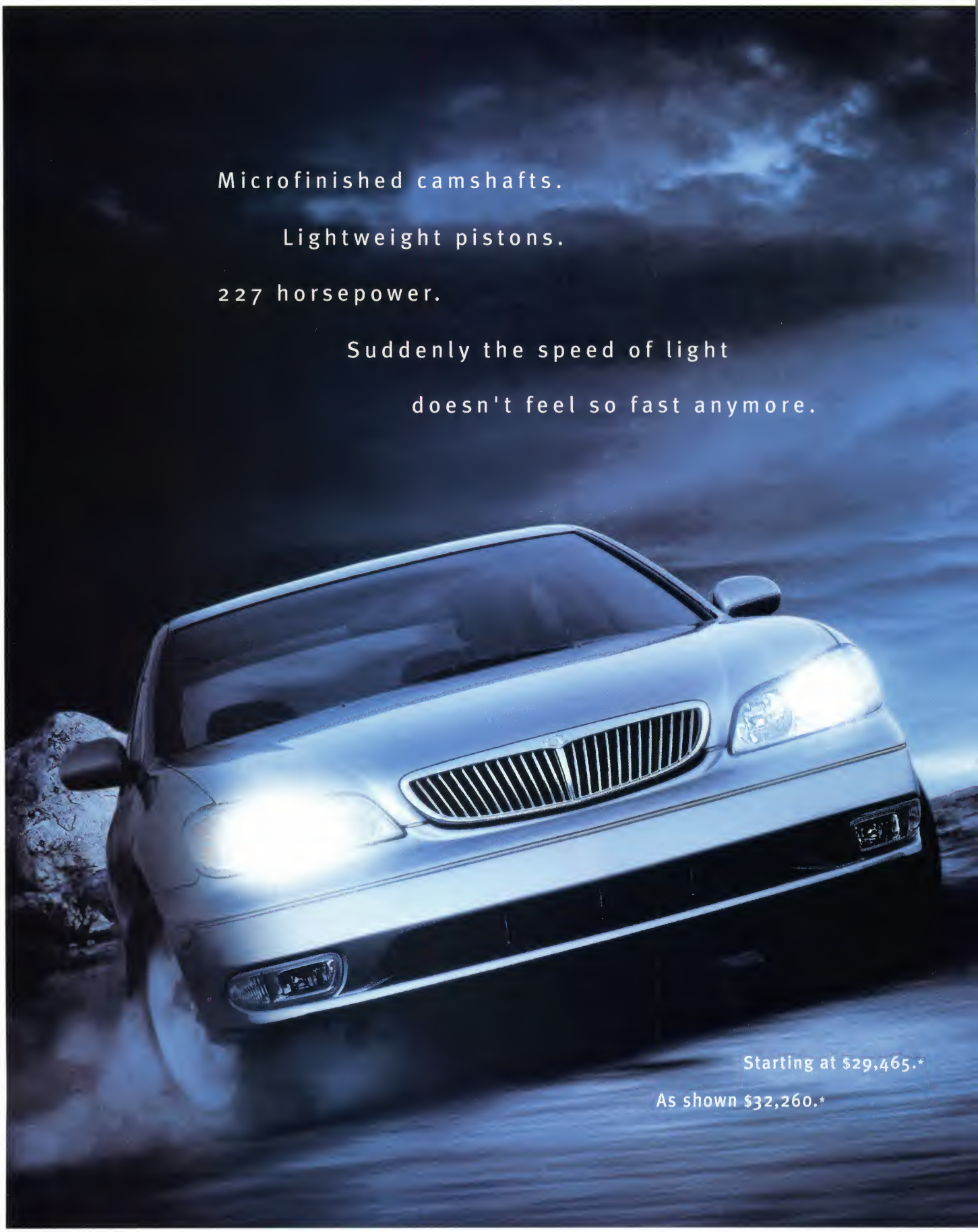
CONSULTANTS
FIND A MAC EXPERT IN YOUR AREA 129

COVER STORY
MODEL & ACTRESS CLAUDIA SCHIFFER
TALKS ABOUT TECHNOLOGY, MACS & LIFE 68

CULTURE
FREE FALL MACS > IMACS AT 35,000 FEET 50
HEAR DIFFERENTLY > THE SOUNDS OF THE UNIVERSE 81
MACS IN BRAZIL > INSIDE LOOK AT LIFE & APPLE 210
PAINTER MARI EASTMAN SPEAKS WITH MACDIRECTORY 205

DEPARTMENTS
MACDIRECTORY LETTERS 14
DESIGN 21 BARONESS SUPPORT 28

MODEL: ANNE
TOP: BLACK TOP BY JOHN BARTLETT
SKIRT: BLACK PENCIL SKIRT BY MARC JACOBS



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FEATURE REVIEWS
FILMLESS FILMS > THE DIGITAL MOVIE REVOLUTION **50**
THIN IS IN > SHOPPING FOR PLASMA DISPLAYS **98**

INTERVIEWS
REAGON CAMERON PHOTOGRAPHY > EYE FOR BEAUTY **34**
LYNN CONWAY > FROM IBM TO SEX CHANGE **46**
APPLE COMPUTER AND ASSISTIVE TECHNOLOGY **44**
WILL APPLE FOLLOW'S IBM LEADERSHIP IN R&D? **43**

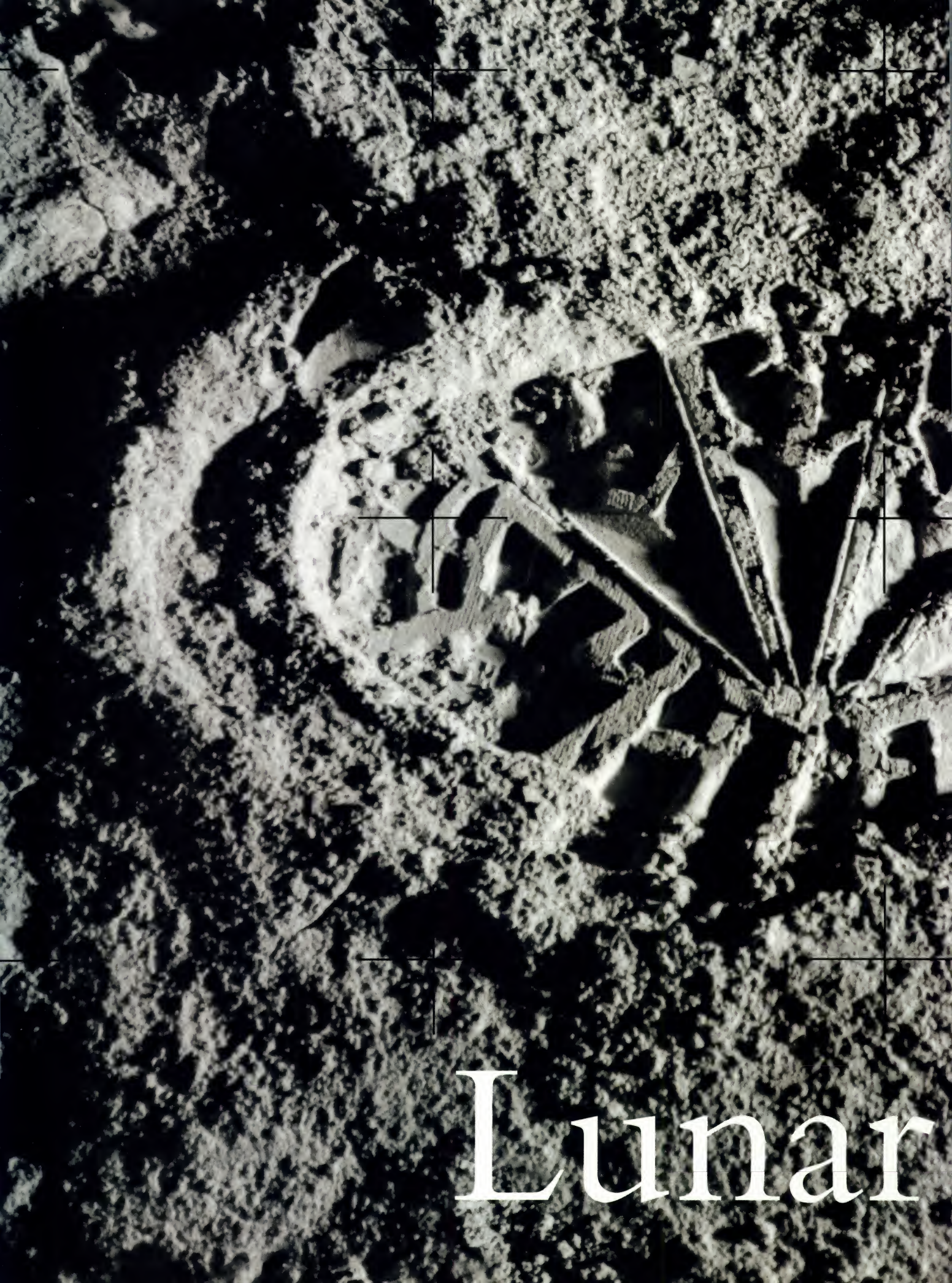
MUSIC MADE WITH MACS
INTERVIEWS WITH FILTER **193** CHUCK-D **203**
BARENAKED LADIES **197**

REVIEWS
TOP 10 SECURITY TOOLS **88** > DISK WARRIOR 2.1 **90**
VIRUS BARRIER 1.5.3 **92** > NET BARRIER 2.02 **94** > MAC OS X **96**
APPLE ITUNES **110** > CANON XL1 **111** > MOVIEWORKS 5.0 **112**
GCC ELITE 21 LASER PRINTER **178** > FREEHAND 10 **183**
Z BRUSH 1.2 **184** > QUARK WRAPTURE 1.5 **186**
DREAMWEAVER 4.0 **187** > COREL KNOCKOUT 1.5 **190**

SCENE
MACDIRECTORY AWARDS INFLUENTIAL LEADERS EVERY WEEK **115**

ULTIMATE MAC GUIDE
FIND EVERYTHING YOU NEED FOR YOUR MAC. OVER 5,000 BUSINESS LISTINGS INCLUDING HARDWARE, SOFTWARE, SERVICES & MORE **139**

MODEL: JOHNNY
SHIRT: BUTTON DOWN SHIRT WITH BANDANA DETAIL BY MODERN AMUSEMENT
T-SHIRT: GREEN T-SHIRT BY OLD NAVY
PANTS: NAVY PANTS BY MODERN AMUSEMENT



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WEDNESDAY, JA...

THE DAILY AFRICAN

AFRICA'S BIGGEST-SELLING QUALITY DAILY

European developing countries targeted by African tobacco industry.

African Cancer Society accuses tobacco industry of cynicism.

Lumbumbashi, Wednesday. During a press conference, leaders for the African tobacco company Bumba-Monga said they had just reached agreement with officials from the governments of the European republics Italy and Spain to open two plants for manufacturing cigarettes. "It is not to be regarded as a defensive move in reaction to the strict anti-smoking laws that are expected to pass in the AU next week", Ndana Ongulu of Bumba-Monga said. "We are constantly looking for new ways to expand in order to remain the healthy and stable company we have been for the last 100 years." African Cancer Society president Allingo Gorella considers the tobacco company's move to be "one more example of the total cynicism that still breeds in the old economy". Mr Gorella added that it is strange that we have export embargos on guns to most European nations, but are free to help them (the Europeans) to kill themselves with cigarettes.

"We have export embargos on guns to most European nations, but are free to help them to smoke themselves to death"

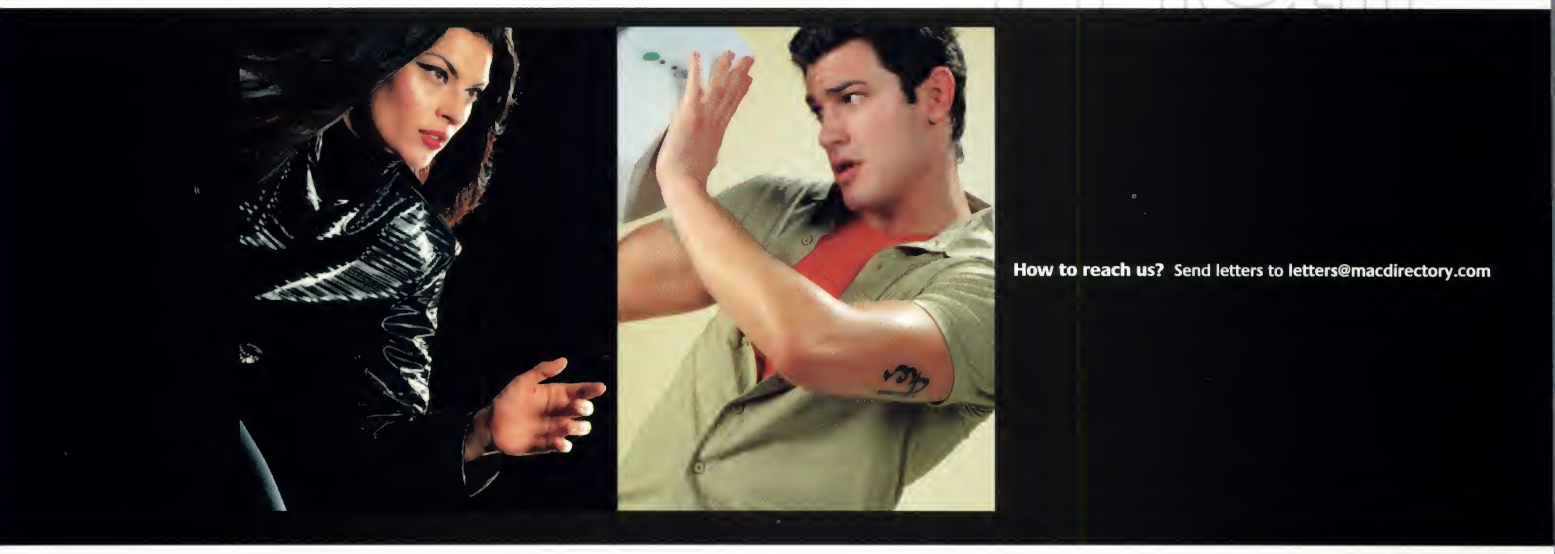
loo.kom global launch delayed. loo celebrates with delay party.

Brazzaville, Congo. The e-trade giant loo.kom gave a delay party for the 700 employees who were hired last week. "If you are waiting for something really good, you can't wait long enough", says sexy loo-queen and co-founder Daisy Lee-Anrong when asked why they spent AFRO 550,000 (USD $700,000) on a staff party celebrating their own delay. The delay is said to be due to technological problems with implementing computer software. American veteran rapper XTCY was flown in to perform at the party hosted by Daisy and partner Ernesto [illegible]ucko.

New York, D.C., Chicago, San Francisco, Las Vegas, Santa

Monica, Beverly Center, Costa Mesa, Ala Moana 1 877 4 D Diesel

mail



How to reach us? Send letters to letters@macdirectory.com

MACDIRECTORY SPRING 2001 COVER

INKJET PRINTER REVIEW

Black is Beautiful > Beautiful dark color spectrums on the cover of your Spring edition. A model dressed completely in black and shot on a black background shows design risks without compromise. Nice to see something different out there.
Mike Linestine, CT

Inkjet Printers go Fashion > Thank you for including dimension and fashion in your recent inkjet printer review. It helped me buy the right printer and it was different, nice to look at and refreshing.
Bruce Kier, LA

Magali > I like reading your magazine very much and the Magali cover article was visually stimulating. In an era of super models and over-exposed fashion, it was nice to see MacDirectory's approach to bring the human qualities to a successful model like Magali. The interview showed me that the modeling industry can be destructive and abusive. And thank God for Magali being a Mac nerd!
Carla Ryan, VA

Jennifer Jason Leigh > The strongest part of MacDirectory's interview with Jennifer was the versatility and exploration of her passion with digital technology. She is setting a new trend in the movie making industry. Actors are now more involved with the content, production and editing of their own acting. MacDirectory deserves a lot for bringing intelligent, sensitive and fresh-forward content to a Mac magazine.
John Hudson, MN

Macs in Odessa > Talk about a different world! Your article on the former Soviet Union in Ukraine was culturally inspiring. With so little information on this remote town on the west side of the Black Sea, I was blow away to learn the use of Macs! Although Apple was not very well know there, MacDirectory's educated me about their current technology infrastructure. I am also considering a visit so I can see for myself the deep translucency of the turquoise Black Sea.
Norman Wilson, CA

Digital Magic > Your interview with digital retoucher Judy Tucker was magical. She is a designer who put vision and creativity into middle American households by making these creative concepts real -- a truly unique artistic expression. Very refreshing indeed.
Lora Payton, GA

The Red Team > Thanks to MacDirectory for writing about the most prominent team of professional hackers around. The idea that top American corporations actually sponsor hackers on their information systems to test their vulnerability was news to me. And I had no idea that both Steve Jobs and Steve Wozniak both began their careers as hackers. I guess I made the wrong choice of career.
Michael Loran, WA

Apple Facts > Although I am a die-hard fan of MacDirectory, I was looking for more surveys. I did enjoy the readership surveys results you that were published especially the first one, "Should Steve Jobs step down from Pixar and concentrate on Apple?" Please be sure to include product specific questions. This could be very valuable for people like me when purchasing a Mac.
Venus Olarne, NY

Alex Ostroy > I was impressed with the article you did on Alex Ostroy. His work is amazing and goes beyond any illustrator I have seen before. I especially enjoyed the process and the technology he used. Glad to know that Macs remain his favorite choice of computers :)
Jon Wei, FL

Apple's G4 Strategy > Apple's G4 Strategy was more like a tragedy to me. With so much put into this brilliant machine it is unfortunate that it did not sell well. I enjoyed reading your article very much because it gave me an inside perspective on the PC war and how it affects Apple sales.
Colin Bribben, NM

iMovie > The piece MacDirectory did on iMovie helped me make an educated choice as a consumer. I wasn't sure if I should have upgraded to the new version but your article made me understand the new features including the direction buttons and the new advanced function menu. I owe you one!
Alice Evans, NY

MacDirectory Buyer's Guide > I am writing this to inform you folks at MacDirectory that the product guide in your magazine is extremely helpful. I have been able to find software and products for my Mac that I never knew existed. I did not know that there were so many cool products for Mac users!
Nancy Colman, AR

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3D
3D CLIP ART 172
3D MODELING SOFTWARE 173

A
ACCELERATORS 139
ACCESSORIES
CABLES 139
CACHE 139
DISPLAY DEVICES 139
HARDWARE 139
PCMCIA 139
POWER PROTECTION 139
PRINTING 139
PROJECTION DEVICES 139
SCSI 139
SECURITY 139
SERIAL INTERFACE 139
SPEAKERS 140
USB HUBS 140
ACCOUNTING
EDUCATION FOCUS 140
FILM & TV FOCUS 140
GENERAL OFFICE 140
GRANTS FOCUS 140
INTERNET/WWW FOCUS 140
INVENTORY 140
JOB COSTING FOCUS 140
LEGAL FOCUS 140
PAYROLL FOCUS 140
POINT OF SALE FOCUS 140
REAL ESTATE FOCUS 140
RETAILING FOCUS 140
TIME & BILLING FOCUS 140
ADVERTISING MANAGEMENT SOFT ..140
AGRICULTURE MANAGEMENT SOFT .140
ANATOMY SOFTWARE 140
ANIMATION SOFTWARE 140
APPLE CONSULTANTS 140
ARCHITECTURE SOFTWARE 140
ASTROLOGY SOFTWARE 140
ASTRONOMY SOFTWARE 140
AUTOMOTIVE MANAGEMENT SOFT ..141

B
BACKUP AND RECOVERY SOFT 141
BAR CODE SOFTWARE 141
BIOLOGY SOFTWARE 141
BOTANY SOFTWARE 141

C
CAD SOFTWARE 141
CHEMISTRY SOFTWARE 141
COMMUNICATIONS ....
CONFERENCING FOCUS 141
DATA, FAX, MODEMS 141
ELECTRONIC MAIL FOCUS 141
ISDN HARDWARE 141
COMPUTER RESELLERS 142
CONNECTIVITY - EMULATION SOFTWARE
MAC TO IBM 144
MAC TO MS-DOS 144
MAC TO PCP/IP 144
MAC TO PICK 144
MAC TO TANDEM 144
MAC TO UNIX 144
PC TO MAC 144
CONSULTING SERVICES 129, 144
COOKING SOFTWARE 147

D
DATA ACQUISITION SOFTWARE 147
DATA COLLECTION SOFTWARE 147
DATA RECOVERY 147
DATA VISUALIZATION SOFTWARE 147
DATABASE SOFTWARE 147
DENTAL SOFTWARE 147
DIGITAL CAMERAS 147
DIGITAL PHOTOGRAPHY SERVICES ..148
DISK DUPLICATION DRIVES 148
DISPLAY SYSTEMS - ACCESSORIES 148

E
ECOMMERCE SOFTWARE 148
ECONOMICS SOFTWARE 148
EDUCATION SOFTWARE
ADMINISTRATION 148
ELEMENTARY 148
SPECIAL EDUCATION 148
ELECTRICAL CAD SOFTWARE 148
EMBROIDERY SOFTWARE 148
EMPLOYMENT SERVICES 148
ENCYCLOPEDIA 152
ENGINEERING SOFTWARE
CONSTRUCTION 152
DESIGN 152
HYDRAULIC 152
ENTERTAINMENT SOFTWARE 152

F
FASHION SOFTWARE 152
FILE MANAGEMENT SOFTWARE 152
FILE SERVERS 152
FILE TRANSFER SOFTWARE 152
FINANCE INVESTMENT SOFTWARE ..152
FINANCIAL PLANNING SOFTWARE 152
FINE ARTS SOFTWARE 152
FLASH CARD STORAGE 152
FLOPPY DISKS 152
FONTS 152
FURNITURE DESIGN SOFTWARE 152

G
GAMES 152
GENERAL INTEREST SOFTWARE 153
GEOGRAPHY SOFTWARE 153
GEOLOGY SOFTWARE 153
GPS AND NAVIGATION SOFTWARE ..153
GRAPHICS - CLIP ART FOCUS 153
GRAPHICS SOFTWARE 154

H
HAIRDRESSING MANAGEMENT SOFT .153
HANDHELD COMPUTING SOFTWARE 153
HEALTH & NUTRITION SOFTWARE 153
HISTORY SOFTWARE 138
UNITED STATES FOCUS 153
HUMAN RESOURCES SOFTWARE 154

I
IMAGE INTERPRETATION SOFTWARE .154
IMAGE PROCESSING SOFTWARE 154
INFORMATION MANAGEMENT SOFTWARE
BIBLIOGRAPHY 154
CONSTRUCTION 154
INPUT DEVICES
ACCESSORIES FOCUS 154
BAR CODE READERS 154
GRAPHICS TABLETS 154
JOYSTICKS 154
KEYBOARDS 154
LIGHT PEN DEVICES 154
MOUSE 154
REMOTE DEVICES 154
SCANNERS 154
TOUCH SCREEN DEVICES 154
TRACKBALLS 154
INTEGRATION SOFTWARE 154
INTERNET & WEB PUBLISHING SOFT .154
INTERNET SECURITY SOFTWARE 154
INTERNET SERVICES 154
INTERNET SERVICES PROVIDERS (ISP) 154

K
KNITTING SOFTWARE 156

L
LANGUAGE SOFTWARE 156
LCD PANELS 156
LEGAL SOFTWARE 156
LIBRARIES SOFTWARE 157
LIGHTING DESIGN SOFTWARE 157
LITERATURE SOFTWARE 157

M
MACINTOSH TRAINING 157
MAIL ORDER COMPANIES 157
MANAGEMENT SOFTWARE 157
MANAGEMENT SOFTWARE- GENERAL 157
MAPPING SOFTWARE 157
MATHEMATICS - ELEMENTARY SOFT .157
MATHEMATICS SOFTWARE 157
MEDICAL SOFTWARE 157
MEDICINE SOFTWARE 157
MEMORY UPGRADES 157
METEOROLOGY SOFTWARE 158
MONITORS & DISPLAY SYSTEMS 158
MP3 158
MULTIMEDIA/VIDEO SERVICES 158
MUSIC AND SOUND EFFECTS SOFT ..159
MUSIC AND SOUND HARDWARE 159
MUSIC AND SOUND SOFTWARE 159
MUSIC EDITING SOFTWARE 159
MUSIC SOFTWARE 159

N
NETWORK - CONNECTORS 159
NETWORKING ....
BRIDGES ETHERNET 159
BRIDGES FOCUS 159
CARDS 160
ETHERNET PCMCIA 160
GATEWAYS ETHERNET 160
HUBS ETHERNET 160
NETWORKING CARDS - ETHERNET PCI 160
NETWORKING CARDS - PCI FOCUS ..160
NETWORKING SERVICES 160
NETWORKING SOFTWARE 161
NON-PROFIT ORGANIZATION SOFT ..161
NUMERICAL ANALYSIS SOFTWARE ..161

O
ONLINE SERVICES - BROWSERS 161
OPERATING SYSTEM SOFTWARE 161
OPTICAL DRIVES 162
OPTICAL TEXT RECOGNITION SOFT .162
OUTPUT & IMAGING SERVICES 162

P
PAGE LAYOUT SOFTWARE 162
PHYSICS SOFTWARE 162
PMCIA STORAGE 162
PRINTER - IMAGESETTERS 162
PRINTERS
DYE SUBLIMATION DEVICES 162
FILM OUTPUT DEVICES 162
INKJET DEVICES 162
LABEL DEVICES 162
LASER OUTPUT DEVICES 162
PLOTTER DEVICES 162
PROOFING SYSTEMS 162
RIP DEVICES 162
SPOOLERS/SERVERS 162
PRINTING & PRE-PRESS SERVICES 162
PROGRAMMING SERVICES 166
PROGRAMMING TOOLS
APPLE GUIDE 164
APPLESCRIPT 164
ARTIFICIAL INTELLIGENCE (AI) 164
BASIC PROGRAMMING 164
C PROGRAMMING 164
C++ PROGRAMMING 164
CASE PROGRAMMING 164
FORTRAN PROGRAMMING 164
GENERAL PROGRAMMING 166
HYPERCARD PROGRAMMING 166
JAVA PROGRAMMING 166
MACINTOSH PROGRAMMING 166
OOP PROGRAMMING 166
PROJECT PLANNING SOFTWARE 166
PROJECTION SYSTEMS 166
PSYCHIATRY SOFTWARE 166
PUBLICATIONS 166
PUBLISHING MANAGEMENT SOFT 168
PUBLISHING SOFTWARE 168

Q
QUILTING SOFTWARE 168

R
READING SOFTWARE 168
REAL ESTATE MANAGEMENT SOFT ..168
RECORDABLE DRIVES 168
RELIGION SOFTWARE 168
REMOVABLE STORAGE 168
RENTING & LEASING SERVICES 168
REPAIRS 168
RESTAURANT MANAGEMENT SOFT ..170
RETAILING MANAGEMENT SOFT 170
REWRITABLE DRIVES 170

S
SCANNING SOFTWARE 170
SCHEDULING SOFTWARE 170
SCHOOL/EDUCATION 170
SCIENTIFIC SOFTWARE 170
SCREEN SAVERS 171
SCREENPLAY/MOVIE WRITING SOFT .171
SCRIPT WRITING SOFTWARE 171
SECURITY SOFTWARE 171
SEPARATIONS & COLOR MANAG 171
SIGNMAKING SOFTWARE 171
SOCIAL SCIENCES SOFTWARE 171
SPORTS SOFTWARE - BASEBALL 171
SPORTS SOFTWARE - FISHING 171
SPORTS SOFTWARE - GOLF 171
SPORTS SOFTWARE - SHOOTING 171
STATISTICS SOFTWARE 171
STOCK PHOTOGRAPHY SERVICES 171
STORAGE AND DRIVES 173
STORAGE AND DRIVES - HARD DISKS 173

T
TAPE DRIVES 173
TECHNICAL SUPPORT ASSISTANCE
(for hardware/software companies) .173
TEXT PROCESSING SOFTWARE 174
TEXTILE SOFTWARE 174
TRADE SHOWS AND SEMINARS 174
TRAINING SERVICES 174
TRAINING SOFTWARE 176
TRANSLATION 176
TYPING SOFTWARE 176

U
USED EQUIPMENT 176
USER GROUPS 176

V
VETERINARIAN SOFTWARE 176
VIDEO DEVICES - HARDWARE 176
VIDEO EDITING SOFTWARE 176
VIDEO RECORDING DEVICES 176
VIRUS PROTECTION SOFTWARE 176

W
WORD PROCESSING SOFTWARE 176

Z
ZOOLOGY SOFTWARE 176

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Dama Chair

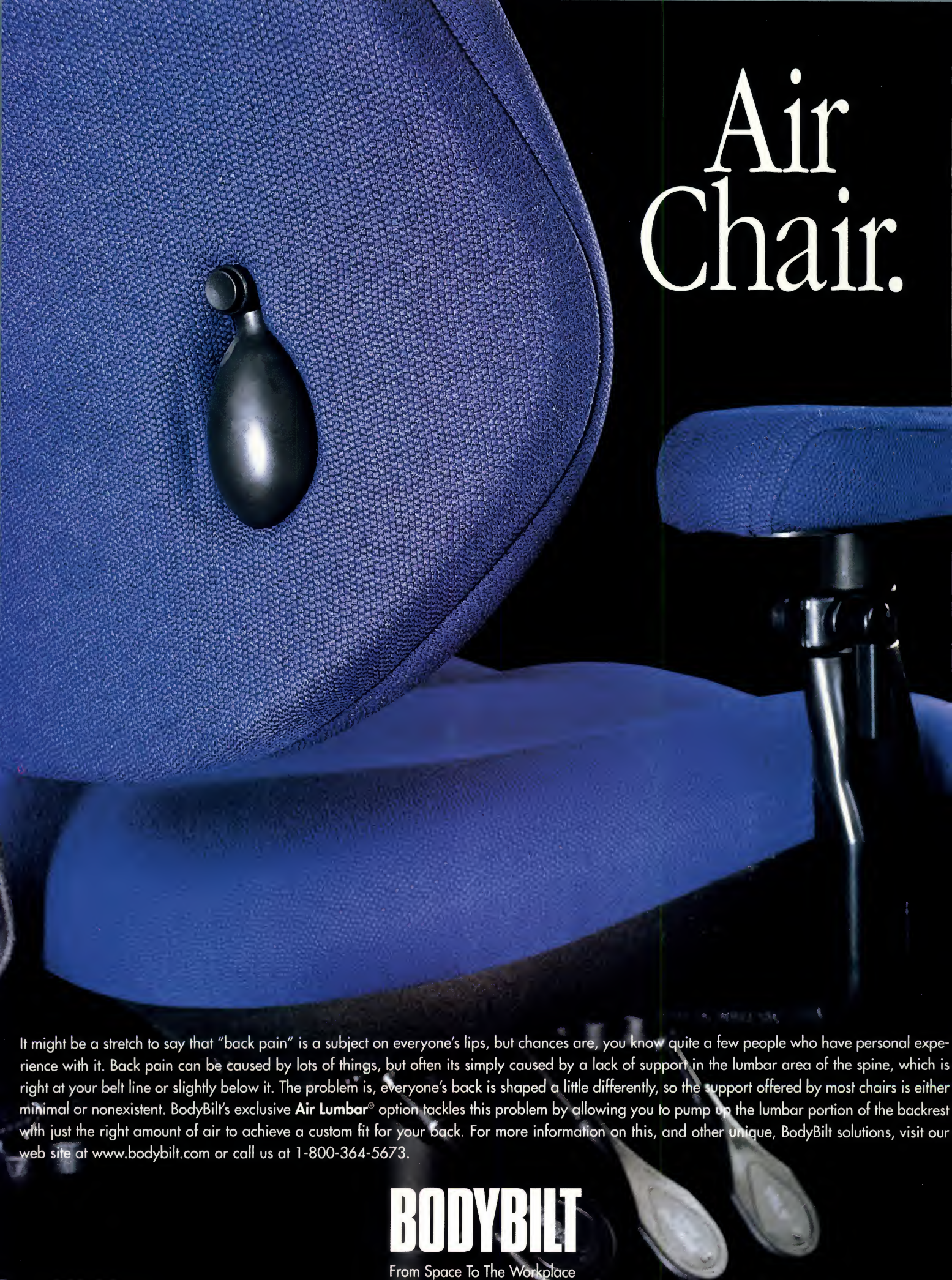
The Dama chair designed by **Enrico Franzolini** from Italy is available in beech natural wood, stained or lacquered. It comes with upholstered fabric, leather or Alcantara. All covers are removable.
Price > Chair: $485, Armchair: $635

Milano Table

Designed by **Enrico Franzolini**. Table fixed or extensible with oval top in beech or cherrywood natural, stained or lacquered. Price varies according to table top finishing:

Top in beech fix $1,300
Top in cherrywood fix $1,340
Top in beech - extensible $1,680
Top in cherrywood - extensible $1,940

The structure base of the Milano table is made of black iron providing excellent durability.



It might be a stretch to say that "back pain" is a subject on everyone's lips, but chances are, you know quite a few people who have personal experience with it. Back pain can be caused by lots of things, but often its simply caused by a lack of support in the lumbar area of the spine, which is right at your belt line or slightly below it. The problem is, everyone's back is shaped a little differently, so the support offered by most chairs is either minimal or nonexistent. BodyBilt's exclusive **Air Lumbar**® option tackles this problem by allowing you to pump up the lumbar portion of the backrest with just the right amount of air to achieve a custom fit for your back. For more information on this, and other unique, BodyBilt solutions, visit our web site at www.bodybilt.com or call us at 1-800-364-5673.

BODYBILT

From Space To The Workplace

Basel Table

This rectangular table is available in beech, oak or natural Cherry wood, stained or gentle finish (gentle finish provides a mat finish to the surface). It also comes with an extensible lateral extension.

BEECH: $2,145 OAK: $2,330 CHERRY: $2,470

All furniture designs can be purchased online at www.accademiaitaly.com

Words by MacDirectory Readers > baroness@macdirectory.com

Baroness > MacDirectory's tech goddess

Q: During startup, while extensions are loading, I get a dialog box with a bomb reading: *'Code Fragment Could Not Be Prepared.'* When I start up with extensions off, I get an error dialog saying: *'Finder could not start because the following libraries could not be found: ObjectSupportLib*. Baroness, what am I doing wrong?
William Morgan, NM

A: You're not alone, darling. Customers who recently installed additional software are reporting this problem. The condition has been found to indicate that some system software files have been damaged or corrupted, thus the code fragment manager *(cfm)* reports the error.

If you are still using the system software that was pre-installed, the best course of action is to perform a *'Restore In Place'* from the Software Restore CD. This will overwrite all affected files. If you have upgraded your Mac OS software to a level above the pre-installed version, the best course of action is to perform an update install to have the Mac OS system software refreshed.

Q: Baroness, I don't like to change the oil in my car, and I don't like to defrag my hard drive. How long can I put it off?
Alexis Kylesmi, IA

A: You lazy darling, you should change your oil every 3,000 miles or three month, whichever comes first. As to how often you should defrag your hard drive, I can only say – it depends.

Fragmentation occurs when files are deleted and created. For example, suppose you create three files, then delete the second one. If you introduce a fourth file, which is larger than the size of the second file, the Macintosh file system may put a portion of the fourth file in the space occupied by the second file, and put the remainder after the third file. To access the entire file, therefore, the file system has to look in two places.

The file system used on Macintosh computers is designed to work with a certain degree of fragmentation. This is normal and does not significantly affect performance for the majority of users and you should not need to defragment your hard disk frequently. In reality, however, the nature of the files, the nature of the work you are doing, the nature of random-access disk mechanisms and the exact order in which the files are segmented can all have a bearing on the resulting performance. In general, there is not significant degradation of performance from normal use of your computer.

If you create and delete a large number of files, your hard drive may become fragmented to the point that you may see a slight slow-down of file system performance. At this point you can use a defragmenting utility, or back up your hard disk, use Apple Drive Setup to reinitialize it, then restore your files.

Here's a big warning for my lazy darling - reinitializing erases all the files on your hard drive. Make sure you have a complete backup because you will need to restore all your files once initialization is complete. Note: The defragmenting process generally results in a large amount of disk activity due to the amount of data being rearranged. Some disk defragmenting software packages also cannot completely recover if a critical portion of data on the hard disk should be in *'transit'* if the software fails. In this instance you may run the risk of losing that specific file or all data on your hard drive. Apple recommends keeping a current backup of your hard drive. You should fully backup your hard drive before running any defragmentation software.

Q: What is the best way to clean the LCD on my PowerBook or iBook computer? Can I use any glass cleaner? **Ashley Thomson, CA**

A: Darling, watch where you're pointing that glass cleaner. To clean the screen or LCD, first, turn the computer or Studio Display off. Dampen a clean, soft, lint-free cloth with water only and wipe the screen. Do not spray liquid directly on the screen. You may also use a mild glass cleaner that does not contain alcohol or ammonia. Most office supply stores sell cleaning kits specifically designed for this purpose.

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While there are many commercial products available that will work without damaging the plastics, the darlings at Apple tell me they tested a product called Klear Screen made by Meridrew Enterprises *(http://www.klearscreen.com)* and found it does not cause any harm to the plastics.

Q: When I play back rendered clips in Final Cut Pro Version 1.2.5, a 'Dropped Frames' message appears. **Brianna Jamerson, TN**

A: Don't have a hissy fit, darling. Lots of people using Final Cut Pro 1.2.5 have reported dropped frames on clips that require rendering, such as clips with filters, transitions, or motion tab settings applied to them. This issue may be resolved by replacing QTM Reader 1.2.5 with QTM Reader 1.2.6.

To replace the plug-in:
1. Download QTM Reader 1.2.6 from the Apple Software Updates Web site
http://asu.info.apple.com/swupdates.nsf/artnum/n11843

2. Make sure the Final Cut Pro application is not open.

3. Open the Plug-ins folder inside the Final Cut Pro application folder.

4. Find the plug-in called QTM Reader.

5. Create another folder inside the Final Cut Pro application folder-not inside of the Plug-ins folder-and name it *'Unused Plug-ins'*. Drag QTM Reader to this folder.

6. Drag QTM Reader 1.2.6 into the Plug-ins folder. It is important to keep the earlier version of QTM Reader for possible future use.

With these steps completed, you can open Final Cut Pro again. You do not need to restart the computer. Note: After updating to QTM Reader 1.2.6, try playing back your previously rendered sequences to make sure that they no longer drop frames. If there are areas in your project that continue to drop frames on playback, re-rendering should fix them.

Q: How do I operate my PowerBook (Bronze keyboard) with the Clamshell Closed? **Ryan Benevento, NJ**

A: Very carefully darling. I swear you sweeties make it too easy. If you have an external keyboard with a power button follow my instructions. These steps won't work for you darlings with Apple Pro Keyboards.

1. Place your PowerBook in sleep mode by closing the display.

2. Connect your power adapter and external display.

3. Connect the Apple external USB keyboard and mouse, and then press the Power button on the keyboard to wake the PowerBook.

To activate the internal display again, put the PowerBook to sleep and wake it with the display open.

Also note the following:
1. If you are using your PowerBook with the clamshell closed, you cannot utilize Video Mirroring. If you have both a VGA and S-Video source connected to the PowerBook, it shows an image only on the VGA device.

2. Connecting an external display increases the power requirements of the PowerBook. Therefore you should use the AC adapter whenever you are connected to an external display.

3. To wake the PowerBook from sleep from an external keyboard (such as when you are running with the clamshell closed), you must press the power key on the external keyboard.

Other keys on the external keyboard do not respond when the PowerBook is truly asleep. In contrast, if the PowerBook has simply spun down the hard disk and dimmed the display (but is not completely asleep), then the PowerBook wakes from any key pressed on the external keyboard.

4. External keyboards without a power button, such as the Apple Pro Keyboard, will not wake in closed clamshell mode.

Q: Baroness, my PowerBook G3 Series has FaxSTF 5.0 software installed. When I open the Chooser and click on the LaserWriter 8 icon, my printer no longer appears. **Andrew Smith, NY**

A: Darling, that's amazing. Poof! And your printer is gone? You should call that sweet magic hunk David Copperfield. Now, if you're talking about your printer icon you should know that FaxSTF software automatically defaults to selecting the Printer/Modem port for the Modem, which in turn occupies that port causing the error, and may disrupt the operation of any AppleTalk device connected to the printer/modem port.

To fix it, you need to:
1. Open the Fax Browser within the FaxSTF folder.

2. Select Settings from the Edit menu.

3. Choose Port from the icons on the left-side of the Settings window.

4. Choose Internal Modem, instead of Printer-Modem Port.

5. Restart the computer.

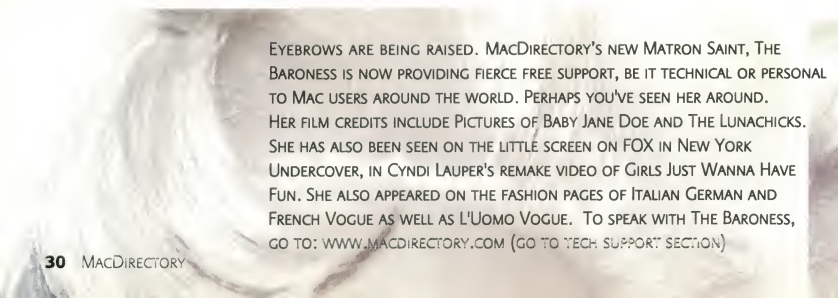
Q: Baroness, I'm running Mac OS X 10.0, and it does not import or retain network settings from Mac OS X Public Beta. The Network control panel no longer contains expected settings. Can you help me? **Savannah Jones, IN**

A: Certainly, darling. Mac OS X 10.0 cannot retain your previous settings due to significant changes made by Apple since the Public Beta. Here's what you need to do:

1. Choose System Preferences from the Apple menu.

2. Click the Network icon.

3. Re-enter your network settings.



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Eye for Beauty > Reagon Cameron

WORDS BY SCOTT HICKEY > IMAGES BY REAGON CAMERON

FOR 12 YEARS, REAGON CAMERON HAS MADE A LIVING APPRECIATING BEAUTY.

A respected and sought-after fashion photographer, the list of models and celebrities he's photographed includes **Kristy Kellington**, **Claudia Schiffer** and **Madonna**, and his images have appeared in the pages of *British* and *Japanese Vogue* and *Allure*.

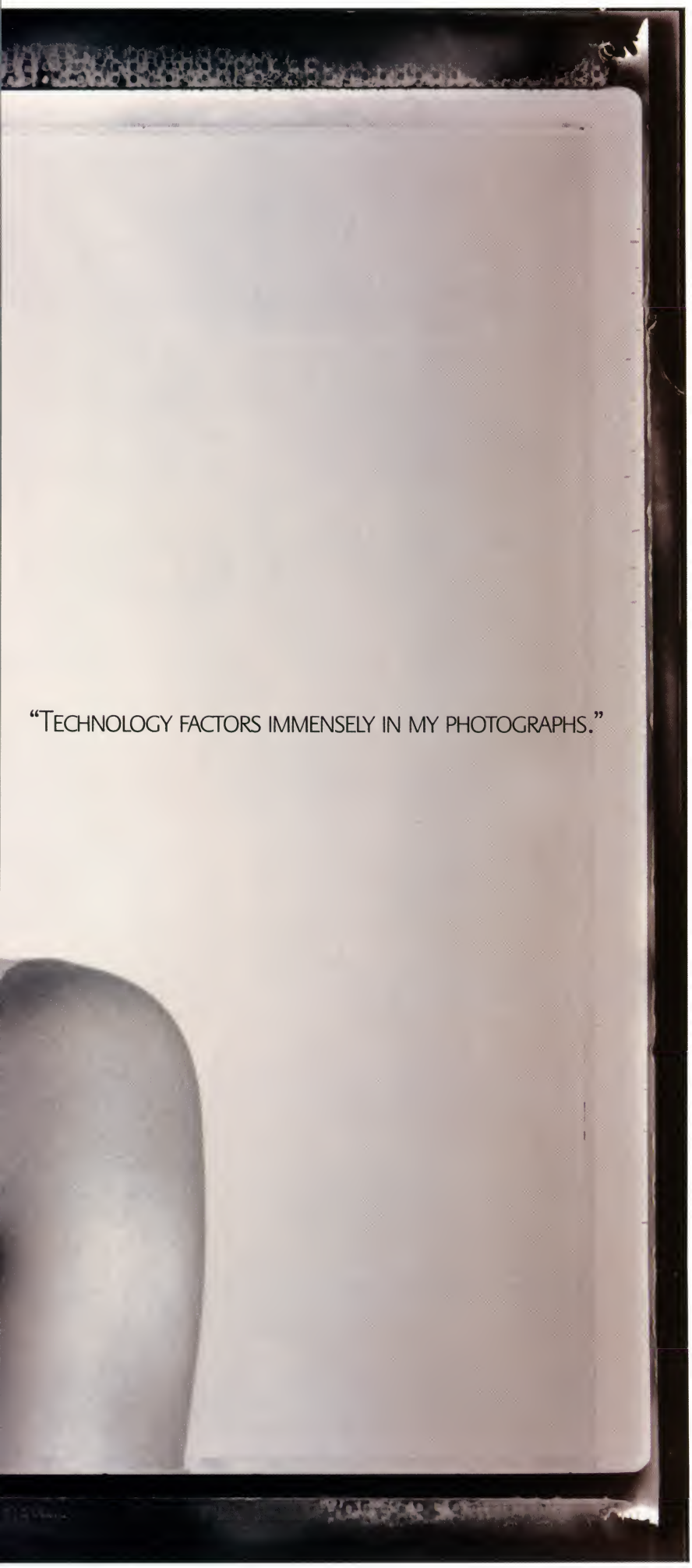
Cameron recently staged a photo shoot for *German Vogue* in New York's Central Park, and transformed part of the urban oasis into a forbidden forest.

"We had smoke machines in the trees and basically made the park look like Sleepy Hollow," he says.

MacDirectory recently spoke with Cameron about his life, job and a September exhibition of his work in New York.

What was your childhood like?
"Living in *New Zealand* bombarded me with great beauty and beautiful light. I began working with local photographers in *Auckland* and then on my 21st birthday moved to *Sydney*, Australia with a ticket given to me by my mother.

"Eventually, I wound up in *London* with dreams of working for *Vogue Magazine*. One of my first jobs was for *Vogue*, and things pretty much launched from there. I moved to New York four and a half years ago, and that is where I call home now."



"TECHNOLOGY FACTORS IMMENSELY IN MY PHOTOGRAPHS."

What made you pick up a camera?
"My dad. Although, I think he wanted me to pick up a football! He was always driving the car and pointing out light on the streets, light on the power cables and light on the buildings. Looking back now, I think this is where the initial spark came from."

Has your approach to photography changed?
"My confidence in my vision has grown. Now, I'm more able to trust myself and my opinion."

What makes a good photograph?
"When the image is imprinted on your memory. When it moves you. Composition."

How do you prepare for a photo shoot?
"The first thing I do at a shoot is set the lighting. I stand where the subject will be, look toward the camera and visualize the outcome."

What models have been the most fun to work with?
"They are all beautiful and great fun to work with. I'm very blessed."

Who would you like to work with, but haven't?
"Stephanie Seymour."

What shoot has been a complete disaster?
"I think like all disasters, my mind has erased it!"

How does technology factor in your work?
"Technology factors immensely in my photographs. My work consists of a lot of beauty and fashion, and digital retouching is pretty much standard. Things have moved well away from hand retouching, and technology is moving at a furious pace.

"All of my work in fashion and beauty is drum scanned from the negative and then worked on with an Apple computer. I oversee all the work, but I am far too busy to devote the time to retouching myself. **John Rosan** at Nucleus Imaging (www.nucleusimaging.com) in *New York City* does all my retouching. I work with John very closely."

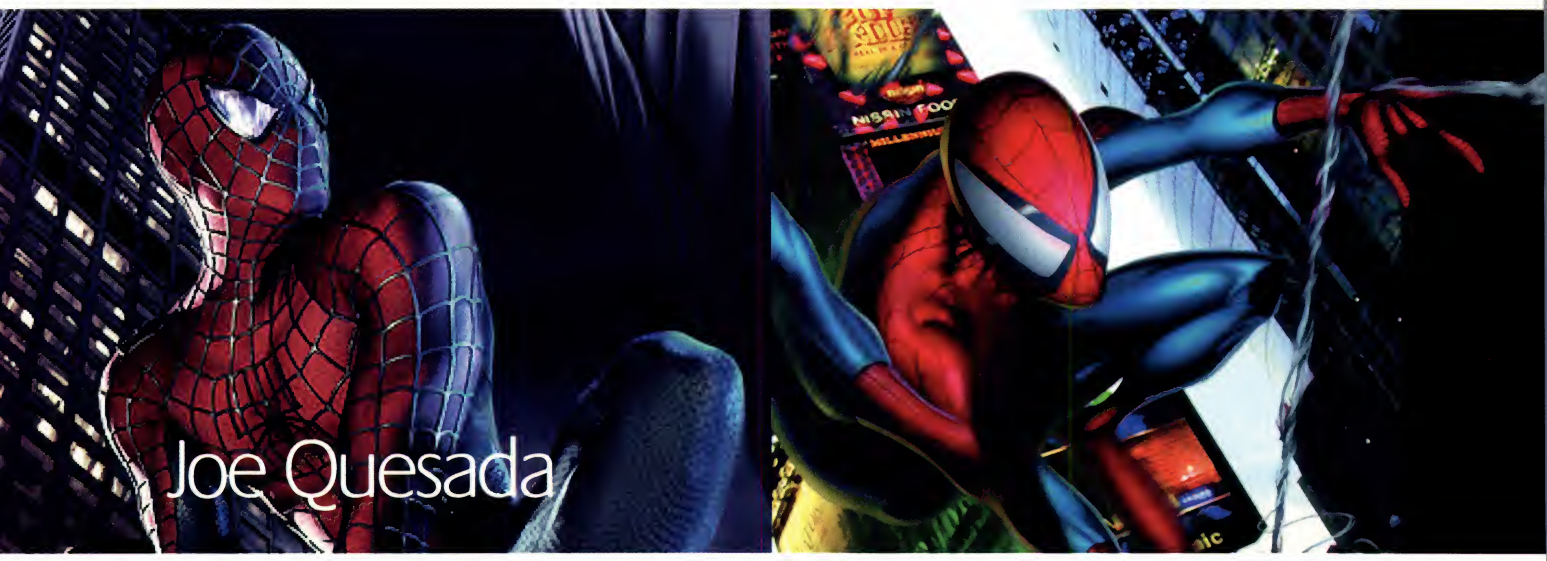
What's the key to longevity?
"I think David Bailey summed it up: 'Photographer's careers are like restaurants, they are a flash in the pan or forever."

For whom, have you filmed videos?
"I've filmed a few commercials, one for H and M. I've also made a music video for Soul II Soul."

You're working on a show of your work?
"Yes. I am very excited about my upcoming exhibition. I think it's very important to exhibit, do a book or simply hang a picture on a wall. It helps to have direct feedback and reach people in some way emotionally.

"I must also confess that I do get nervous thinking about the whole thing! It's going to be a photography installation exhibition and party. It'll be great fun."

What accomplishment are you most proud of?
"My son, and learning what an *F stop* is." ✠



Joe Quesada

WORDS BY SCOTT HICKEY

DC WAS THE FIRST COMIC COMPANY TO BRING SUPERHERO EPICS TO THE BIG SCREEN WITH SUPERMAN AND BATMAN, BUT MARVEL IS OUT TO EVEN THE SCORE.

Last summer, the *X-Men* movie was a runaway hit introducing the team of misunderstood mutants to a larger audience. An *X-Men* sequel is in the works, as is the first *Spider-Man* movie, due out May 3, 2002.

Marvel Editor-in-Chief and well-known comic artist **Joe Quesada** says the Spider-Man movie, starring **Tobey Maguire** as the famous webhead, along with **Michelle Williams** as **Mary Jane Watson**, will be Marvel's shining glory.

"For the longest time, there's been talk of a Spider-Man movie. Now, it's becoming a reality. Very few characters carry that household recognition where mothers of America say, 'Oh yeah, I know what that is.' Spider-Man is one of them."

Without recent technological advances, Quesada says comic book movies like *Spider-man* would be stuck on the launching pad. Cutting edge graphics make it possible for filmmakers to affordably recreate the spectacular special effects comic book artists regularly conjure up onto the page.

" [Comics] always had unlimited special effects budgets. We could do hurricanes plowing through fields for page after page and it didn't cost anything more than some coloring and ink. Hollywood has to pay a fortune to do these things on screen. Now, with computer generated images, they can pretty much do it for the same budget as we do it. It's upped the ante for us as an industry. As Hollywood starts to get better with the special effects and can do things for less, comics had to get even more outrageous."

Graphic advances have greatly improved the way comics look, but computers have yet to insinuate their way into the way comics are drawn. In that respect, the human touch still rules, Quesada says.

"The writing and physical drawing of the book are still done by hand. You can't get a computer to really create stories...yet. And you can't really get a computer to draw stylistically in any sort of fashion that we would consider palatable."

Lettering, however, has become more efficient because of computers. It would take a full day for a skilled letterer to complete eight pages by hand. Using a computer, an entire 22-page issue can be completed in the same time.

The relationship between comics and computers continues to grow, but comics on the Internet thus far have met with mixed success. Last year, comic book legend **Stan Lee** (*creator of the X-Men and Spider-Man among others*) launched a Web site delivering original comics via the Internet. The site attracted readers, but was forced to file for bankruptcy due to slow advertising revenues in the content market. The company was subsequently delisted. A reinvigorated Stan Lee Media, however, is currently appealing the *NASDAQ* delisting.

Quesada is confident Marvel's Dot Comics – found at *www.marvel.com* - will avoid the same fate.

"What we're doing is serializing many of our books. The way we have the ad placed is revolutionary. There is tremendous content on there and you cannot read the all of the content unless you go through the ads. You end up with a 32-page book being serialized in three-weekly segments, and you get it for free."

Marvel plans to put a good portion of their catalog online in the next two years. In the future, Quesada says he envisions people downloading and collecting comics online.

"We're getting to the point now where certain technologies eliminate the bootlegging aspect, making it financially feasible for us to go ahead. It will also eliminate - for the fans - the cost of the actual printing of the comic. Comics are on average between *$2.25* and *$2.50*. Online we'll probably be able to bring that in for considerably less."

Quesada uses a G4 at the office and a Cube at home. ✠

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Will Apple Follow IBM's Leadership in Research & Development?

IMAGE BY EVAN LODON > WORDS BY RON MWANGAGUHUNGA

ACTUAL DOLLARS SPENT ON RESEARCH AND DEVELOPMENT IS BECOMING AN IMPORTANT FACTOR IN THE ONGOING PC PRICE WARS. WHILE ON ONE END OF THE SPECTRUM, DELL IS CUTTING INVENTORY PRICES TO GAIN MARKET SHARE, IBM, AT THE OTHER END OF THE SPECTRUM, IS INNOVATING IN THE SECTOR DUE TO THEIR HIGH INVESTMENT IN RESEARCH AND DEVELOPMENT.

IBM can afford to take a long term view of the benefits of R&D investments because, with a market capitalization at over *$200 billion*, it is not going anywhere. **Dell**, with a market capitalization of just over *$67 billion*, seems more concerned with cornering the market. **Apple Computer**, with a market cap of just over *$8 billion* has developed Apple retail outlets to regain lost market share.

IBM set the standard as a R&D powerhouse in 1999 when it unleashed a *$100 million* exploratory research initiative called "*Project Blue Gene*." Blue Gene would ultimately be 1,000 times more powerful than the Deep Blue machine that beat world chess champion **Garry Kasparov** in 1997, or, roughly two million times more powerful than today's desktop PCs.

IBM's expenses in Research and Development for the three months ended March 31, 2001 increased *2.6 percent* compared with the same period of 2000. IBM's Q1 report for '01 says:

"IBM's continued strong financial performance enabled it to make significant investments to fund its future growth and increase shareholder value. These investments included expenditures of $1,327,000,000 for Research, Development and Engineering."

IBM Research and Development recently announced that it had solved one of the great riddles of the tech age, namely, overcoming the *superparamagnetic* effect. The *superparamagnetic* effect is a common phenomenon in imperfect ultra thin films, which ends up corrupting data. IBM's solution to that problem is *ruthenium*.

Ruthenium, a transitional metal, is sandwiched between two three-atom-thick magnetic layers. The ruthenium layer is called "pixie dust" by IBM Research, but the technical name is "*antiferromagnetically-coupled media*," or AFC media. AFC media allows hard-disk drives to hold up to 100 billion bits of data per square inch.

According to IBM, the world's current methods were nearly at their glass ceiling of 20 to 40 billion bits of data per square inch. In the past four years, data density for magnetic hard drives has doubled every year. Before that, in the past decade, data density for magnetic hard drives had doubled every 18 months. IBM pixie dust broadens the horizon for data density and paves the way for the acceleration of data storage.

Former head of R&D **Steve Wozniak** has commented on the importance of Research and Development. In an interview with Slashdot.org last January, he said:

"Apple is the only manufacturer that is still in control of its future and changing computers and advancing the world and leaving the past behind. Every other one is a slave to *Intel* and *Microsoft* and competitive prices that don't allow for much R&D. They are the ones that have been assimilated. I'd rather be Apple. I believe that Apple's turn around is just starting. But it's not a matter of 'defeating' *Microsoft*. It's only a matter of building the best stuff we can."

Technological innovation, through research and development, drives the evolution of the computing industry and creates excitement, thereby indirectly influencing market share. If IBM continues to put up massive amounts of capital towards R&D, it is not inconceivable that the future of Apple storage solutions could be IBM. ✠

Assistive Technology

WORDS BY RON MWANGAGUHUNGA

What is Assistive Technology?

ASSISTIVE TECHNOLOGY IS A SIMPLE AND LIFE ENHANCING CONCEPT THAT IS DIFFICULT TO EXPLAIN PRECISELY. ONE OF THE CLEAREST DEFINITIONS OF ASSISTIVE TECHNOLOGY WAS GIVEN BY LYNDA WILSON OF THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL, WHO HAS WRITTEN:

"Broadly defined, assistive technology includes any device or piece of equipment that increases the independence of a disabled person."

Although this is somewhat nebulous and runs the gamut from low technology devices, like adapted clothing and toys, all the way through high technology devices, like text-to-speech synthesis, the definition carries the flavor of the term. Apple has been criticized for the fact that it disbanded its corporate contributions program in lean times and, now that finances are stronger, they have yet to reinstate the program. Despite this lapse, Apple has been exemplary over the years in terms of its commitment to assistive technology for the disabled. Apple's Disability Connection page is generally regarded as an invaluable source of information on assistive technology. On that page, Apple states:

"Since 1985, Apple has been deeply committed to helping people with special needs attain a level of unparalleled independence through a personal computer."

No one would argue against that point. Almost every assistive technology site researched for this article had a link to Apple's Disability Connection page. The Macintosh is also the most accessible personal computer in the world, loaded with accessibility features. For example, the Mac has Easy Access system software. Another feature is StickyKeys, which is turned on by pressing the shift key five times, and is immensely helpful to people with a physical disability who type with one finger or a mouthwand *(a pointing device attached to a mouth guard)*. These are only two examples of many.

CloseView screen magnification software is helpful to people with impaired vision. And who can overlook the Jetsons-like text-to-speech synthesis and voice recognition? All of these features, plus the adjustable keyboard, have helped the disabled. But, in many ways, Apple's ergonomic mouse has drawn the most raves. Reader **Bob Siegel** emails MacDirectory:

"My son Jeffrey, now 6 years old, has Down syndrome, which is accompanied by some lack of hand motor coordination skills, among other disabilities. Jeffrey started using an iMac at age 4, and one of the things that helped him do so was the much maligned *('but, we love it!')* iMac round mouse. Instead of a more complicated finger clicking motion, the iMac round mouse allowed Jeffrey to simply 'squeeze' the mouse in order to click it. He *(and the iMac)* were up and running in minutes."

How Assistive Is Assistive Technology?

In 1993, **The National Council on Disability,** surveyed 136 people with disabilities from four different age groups to study the costs and benefits associated with the use of different kinds of technology-related assistance. The four age groups surveyed were: infancy, school age, working age and the elderly. The results of the survey strongly suggested that the benefits outweigh the costs of assistive technology. Most of the surveyed infants with disabilities benefited by having fewer health problems. Also, three quarters of the school age children surveyed were able to stay in a regular classroom. Over three fifths of working-age persons were able to reduce dependence on family members. Moreover, more than half of those surveyed were able to reduce dependence on paid assistance and half were able to reduce dependency on paid persons. Finally, half were able to avoid entering a nursing home. These examples are only a portion of the cost-saving benefits that the Council's survey uncovered.

Apple, always ahead of the cusp, has focused on Assistive technology long before the Congress intervened. **Mary Lee Koyle** of TASH *(The Association for people with Severe Handicaps)* writes: "*(Apple was)* The first company to add accessibility features *(with)* easy access to their operating system."

What Apple Does For The Disabled?

Apple users with disabilities seem happy with their choices in the **Mac. Scott Lay** writes:

"I am a C5,6 quadriplegic since a diving accident in 1969. I purchased my first Apple product, an Apple II, in about 1980 when I was in college. I bought a Mac 128 the first year they became available, '84. I now have 5 Macs networked in my home. I use the Macs for my job and my entertainment."

"I use a HeadMaster cursor control system and have developed a simple device that helps me type more easily."

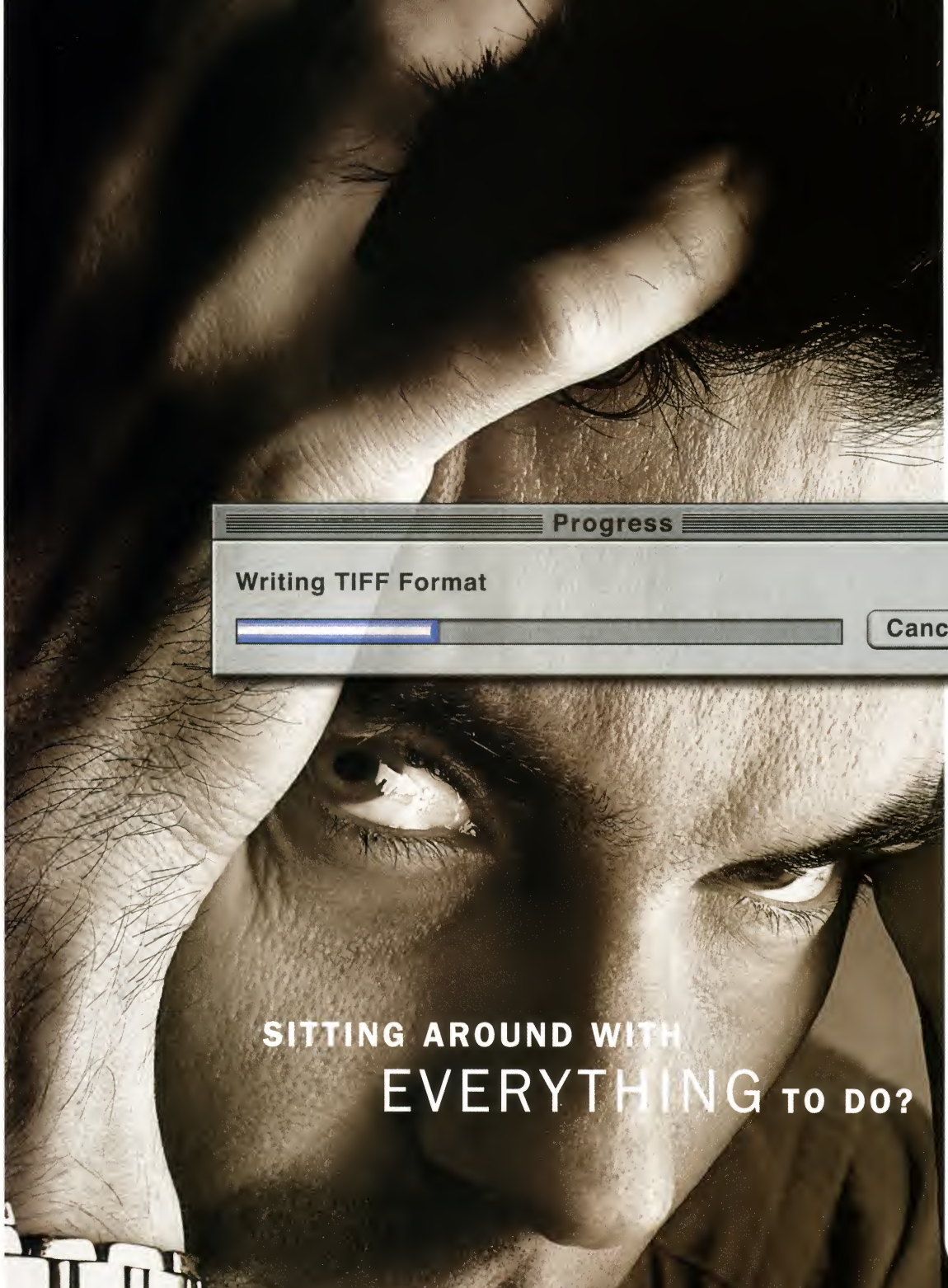
Riccardo Ettore, creator of **Typeit4Me**, which helps disabled individuals by entering text into their Mac by typing faster and more accurately, had this to say about Apple:

"I saw the 128K Mac two days before Christmas 1983 under non-disclosure agreement to write an article for a French computer magazine. Loved it and got the first one to reach Belgium in 1984. Since then, I have owned countless Mac models and currently use a Powerbook."

Mr. Ettore also believes that the Mac is the most accessible personal computer available. "The user interface is very intuitive," says Mr. Ettor" *(it is)* still unequalled by Windows."

Apple discontinued the Apple Catalog in 1994 after losing a significant amount of money but continued to take orders on products for disabled individuals. But the strongest expression of Apple's fidelity of assistive technology is Apple's disability page which combines artwork, vision and optimism along with practical devices. Apple dares to think different about the disabled. And that's a good thing. ✠

www.apple.com/education/k12/disability/



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Lynn Conway

WORDS BY RON MWANGAGUHUNGA > IMAGES BY JOHN COLESKY

MEET LYNN CONWAY - A WOMAN WHO MADE AMAZING CONTRIBUTIONS TO SOCIETY, IN SPITE OF INCREDIBLE OSTRACISM AND STIGMATIZATION JUST FOR TRYING TO BE HERSELF.

Conway grew up in Mount Vernon, New York in a typical middle-class family. Her father was a chemical engineer and her mother a schoolteacher. They divorced when she was seven years old.

Lynn Conway was born Robert Sanders, but changed her name after a sex-change operation in the late '60s.

Her life as Robert was uncomplicated until she left home to attend **MIT**. As puberty set in, however, her desire to have a sex change grew. The pressures of 1950s social conformity proved too much and Robert, who had been in the top 2% of his class during freshman year, flunked out of MIT.

After returning home, Robert became a repair technician at a hearing-aid company. In 1961, Robert enrolled at **Columbia University** majoring in electrical engineering and earned a Bachelor and Masters degree.

A Columbia instructor who was also a research executive at IBM, offered Robert a job. At **IBM**, Robert contributed to supercomputer system architecture and microelectronics chip design. In 1965, Robert invented a method for issuing and ordering a string of instructions per machine cycle in supercomputers called *dynamic instruction scheduling* **(DIS)**.

DIS has since become the standard hardware method for enhancing the performance of the **VLSI superscalar processors** made by companies like **Compaq, Hewlett Packard and Intel.** DIS was quickly incorporated into ACS architecture. As the years passed, DIS has been a great influence in high performance computers.

Robert's work at IBM and his pioneering role in the technological revolution would not be honored, however. Despondent over changing his gender, Robert attempted suicide.

In the late sixties, the United States was emerging from the Norman Rockwell-era, but not at IBM.

When word got out that Robert was planning a sex-change operation, IBM's corporate management was shocked by the proposition. In 1968, the company decided to fire Robert.

Soon after, Robert went to Mexico and had the sex-change operation he so desperately wanted. Robert became Lynn Conway.

After the operation, Conway encountered new problems. When applying for work, she had to disclose her medical history. Many companies turned her down as soon as the medical records revealed she was born a man. Finally content with her identity for the first time, Lynn settled for a less pay and status position as a contract programmer, keeping her successes quiet.

Of her time at IBM, Conway told MacDirectory:

"My time at IBM was with the old mainframe IBM, so it really isn't comparable to Apple. However, I was at Xerox PARC during its heyday when all the concepts for the modern PC were developed: integration of bitmap display, mouse, windows, ethernet, laser-printers, access to the outside via Arpanet (Internet), etc.

"Unfortunately Xerox didn't capitalize on that stuff, but later Apple, Microsoft and others did. However, the folks involved at PARC **(Xerox's Palo Alto Research Center)** experienced the original great creative adventures - and I benefitted enormously from access to the Alto's networks and printers at PARC to create the VLSI text, the course, the design tools, etc.

"Later, when I saw my first Mac, I thought 'finally those PARC ideas are going to go into action and have some real impact on the world.' I thought it was wonderful that some company had finally taken the risk and went for it!"

As times and society changed, Conway was hired doing computer architecture at **Memorex** in 1971. Her work at Memorex drew the attention of engineers at **Xerox** and, two years later, she went to work for them. Conway quickly regained her social stature, though living in *"stealth mode."*

By 1976, Lynn was among the first few hundred of the now 40,000 post-op transsexual women in the US.

Conway spent most of the '70s at PARC collaborating with Professor **Carver Mead** of the **California Institute of Technology**. For four years, they worked with a team on bridging the knowledge gap between digital system architecture and microelectronics.

From this collaboration grew a simplified and structured VLSI design methodology. The collaboration also spawned the standard textbook: Introduction to VLSI Systems. The influence of that introductory college text on the silicon revolution is incalculable.

Conway later became a teacher and put her writing into practice. In 1978, Conway returned to MIT - where she had flunked out 15 years earlier - as a Visiting Associate Professor of EECS. There, she developed the standard teaching method, demystifying the vagaries of VLSI systems.

"When I went to MIT, the VLSI work was still unproven - so going there wasn't so much a triumph as it was a wonderful (though scary) opportunity to make the VLSI work a success. The course turned out to be an amazing happening - everything went according to plan - the students did great designs and they were successfully implemented and many worked.

"Thus, by the end of the course, I did have a feeling of triumph - and during the drive back across the US to California in February of '69 I was almost euphoric - I just knew that course would have a huge impact, and the VLSI methods would go on to great success. Of course it took another 'happening' (MPC79) the next fall to really clinch it and disperse the doubters." ✠

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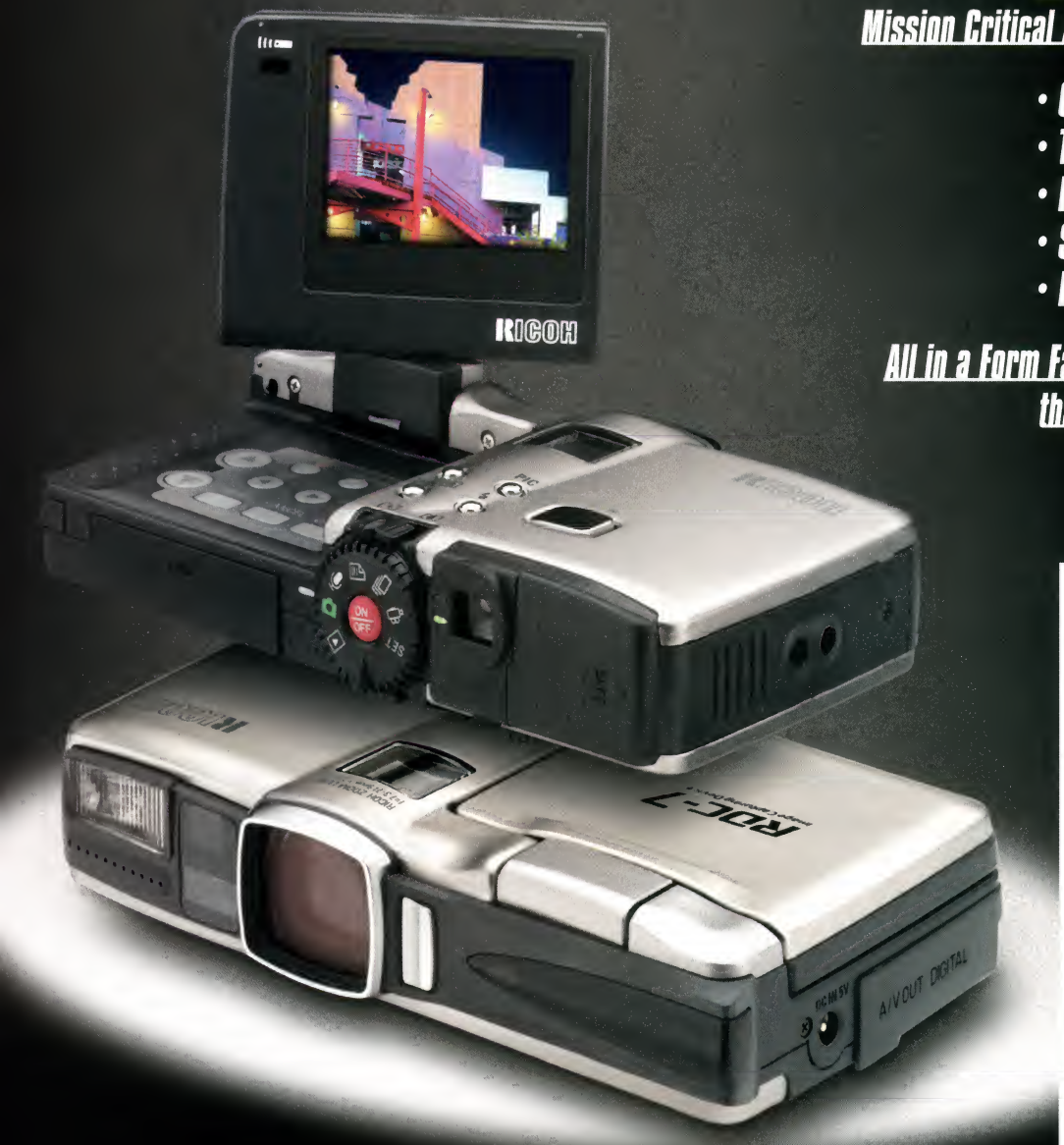

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< Will you purchase a Titanium PowerBook?

DOES APPLE'S FINANCIAL RECOVERY SIGNAL THAT ITS CYCLES ARE DIFFERENT FROM THE REST OF THE PC SECTION?

Yes, while the rest of the PC sector languishes	50%
No, Apple was hurt by the soft economy	15%
It is still early to judge	34%

WILL MAC OS X HELP BRING APPLE BACK TO ITS FEET?

Yes, OS X will be very profitable for Apple	58%
No, They've waited too long	12%
It is too soon to tell	29%

WILL APPLE REGAIN THE NUMBER ONE POSITION AGAIN IN EDUCATION MARKET SHARE?

Yes, Cheryl Vedoe will put Apple back on top	64%
No, Dell's aggressive plan is winning	18%
Too close to call	17%

WHAT DO YOU THINK OF APPLE'S "RIP. MIX. BURN." ADVERTISING CAMPAIGN?

It'll drop the funk bomb on you	69%
It's a dud	23%
It encourages copyright infringement	07%

WHAT DO YOU THINK OF THE FLOWER POWER IMAC?

It captures the color of frozen music	17%
It is not good design	23%
Apple is after a young female audience	19%

WHO WILL WIN THE BATTLE OF THE PC'S?

Dell has the most aggressive strategy	48%
Apple has the best products	47%
Probably one of the other PC makers	04%

JUST 1 INCH THICK AND WEIGHING A MERE 5.3 POUNDS, WILL YOU PURCHASE A TITANIUM POWERBOOK?

Yes, Absolutely	42%
I don't know yet	45%
No, I don't need one	13%

WHAT DO YOU THINK ABOUT THE INTERIOR DESIGN OF APPLE'S NEW RETAIL STORES?

Beautiful and effective	40%
Boring and dull	39%
Nothing special	21%

WILL APPLE BE PROFITABLE DURING 4TH QUARTER 2001?

Yes, Apple will go beyond its current sales goals	36%
No, Apple needs new product development	49%
It will be a close call	15%

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IMAC'S WILD RIDE IN THE SKY

IMAGES BY J3 PRODUCTIONS

WORDS BY MACDIRECTORY

Tim Bates' idea of fun isn't for everyone. He's made a habit, and a living, jumping out of mechanically-sound airplanes. Not only does he pack a parachute, Bates also packs his Sony Digital Camera, and a back-up Sony DV to capture the free fall. After close to 1,600 jumps, your average landlubber has to wonder if Bates isn't tempting a flat-as-a-pancake-fate, but he's not. He's too busy making a living filming death-defying jumps. Bates' high-flying movie making is popular among skydiving teams, skydiving competitions and first-time jumpers. His movies are the perfect evidence to prove to friends that you're not a chicken. Roll tape...

To create his particular brand of cinema verite, Bates uses an Apple iMac DV Special Edition for compiling, editing and publishing footage. One of his next projects is to throw an iMac out of a plane at 20,000 feet. Bates will skydive after the computer, and if all goes according to plan, he'll catch it in free fall.

Tim began editing using *Apple iMovie*, and shifted to *Final Cut Pro* for some larger and more complex projects. He also uses *Media Cleaner* for compressing and publishing some jumps onto the Web.

MacDirectory: What are you all about? **Tim Bates:** "I am 29 years old, born in Melbourne, Australia. I studied Info Tech and Business which has since given way to part-time IT, part-time skydiving. I am an Insulin Dependent Diabetic -- unusual for some extreme sport practitioners -- but this helps with high level of fitness and health awareness. I am reasonably well traveled, having backpacked Mauritius and Reunion Island *(for active Volcano climbing and remote trekking)*, the US *(major skydiving and BASE jumping tour)* and New Zealand, where I lived and worked at a major skydiving operation for 9 months *'learning the trade' (and as an apprentice chef!)*. I look forward to traveling further in the future. My key sporting activities are skydiving, cycling, rock climbing and squash."

MD: How did you get into Skydiving? **TB:** "I spent many teenage years as a member of the Australian Air Force's cadet corps - and always wanted to learn to fly. I had major difficulties getting a student pilot license due to my Insulin Dependent Diabetes, so I turned to gliding, and flew sail planes for two years before turning to skydiving. My main motivation was seeking an aerial sport where diabetes would not limit or restrict my progress toward ambitious goals. I started skydiving in 1993."

MD: Can you describe the process that one must go through in order to be a world-class skydiver? **TB:** "Learn to skydive! - this involves overcoming the initial trepidation that come with doing something that is unnatural! Then practice! There are a number of disciplines within skydiving, including formation skydiving, landing accuracy, freeflying or freestyle skydiving, sky surfing and many others - including camera flying.

"Camera flying is a skill that spans right across all the other disciplines, and to this effect I have become a multi-discipline skydiver, learning many techniques and skills and bringing them together to be as versatile as possible.

"I aspire to eventually be *'good'* across all disciplines - which means I can then go on *(just about)* any skydive and contribute skillfully and positively. If my camera comes with me on this journey, it gives me constant *(and immediate)* feedback on what I've just done, and how well I've done it.

"After learning to skydive, I progressed into team formation skydiving for a number of years, whilst expanding my skills in other disciplines *(accuracy and freeflying)*. Having flown camera for a few years

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now, I have also expanded into skydiving instruction to pass on what I have learned so far, and share enthusiasm for the sport I love.

"Learning how to skydive *'sustainable'* is a big issue! It's an expensive sport, and people need to learn early to manage their money, work hard, earn as best they can, spend wisely, and enjoy the rewards that come from spending what they've earned. Becoming a world-class skydiver is a long and dedicated process... one day I **will** get there - even if it's when I'm fifty or sixty!"

MD: What type of emotions do you feel when you are diving? **TB:** "Skydiving is filled with emotion. In team formation skydiving for example, the emotions of competition and desperation run as full-on as any football game or chess match. The environment in which the sport takes place only serves to amplify this 100-fold.

"Fear and thrill are present in the foreground of your mind during the early stages of learning to jump, and people learn to control and manage these emotions as their skill and comfort levels grow - HOWEVER - they always lurk in the shadows, as the sport is inherently dangerous - and when things don't go to plan *(albeit rarely!)* these emotions are the first things that surface and try to impede your thoughts! When flying my camera, I feel a level of focus and attention to detail that is amplified and enhanced by the nature of what I do, and the awesome environment where I practice.

"Sometimes you feel challenged and at the very edge of your limits, other times - like freefall at sunset amidst the mountains and lakes of New Zealand - I am at peace with myself and the world in a way few would ever understand... then the gentle yet exhilarating flight back to earth under my parachute only eclipses that again ..."

MD: What is the most difficult element of skydiving? **TB:** "Knowing your own limits - when to push them, and when to step back. Today's skydiving equipment really is foolproof. The majority of systems and components that make up a parachute, harness and container system are simple, functional, robust, effective and built to withstand many times the punishment an average jump inflicts. Baring this in mind, only fools put this to the test... either by stretching the limits of their equipment, themselves, or the way they fly their equipment (beyond their capabilities). Knowing your equipment, your own skill level, and your capabilities make you safe. Learning how to discreetly and objectively assess and measure other people's approach to safety keeps you safe in the sky with others. Someone once said to me, 'Skydive with people you trust, and trust everyone at least a little bit until they prove otherwise ... We're all here because we love skydiving.'"

"Knowing your limits is the most difficult element. When to push or when to step back."

MD: Have you ever been in danger while performing a jump? **TB:** "Some would say I'm in danger **every** jump I do! *('Yes Mum... I hear you ...')* I can think of a few close calls here and there like: ... being in freefall at 200+ kilometers per hour amidst opening parachutes that inflate and pressurize to the rigidity of a brick wall....and....still in freefall at 1,500 feet after an altimeter needle stuck me at 2,000 feet.

"To date I have been both lucky and vigilant in having never had to use my reserve or *'backup'* parachute... however I fully expect to have to use it tomorrow, or the next day, or maybe next week. To this end I practice my full reserve deployment procedure at least once a day, and use visualization to picture myself in dangerous situations and rehearse my actions to resolve them. By doing this I keep my wits about me... and when something does happen - I'll be ready... with knowledge, preparation, and a quick mind.

"The ability to think quickly, prioritize, and then act is what saves you in this situation... the priority is to stay away from the cliff and THEN fix the parachute problem... by *'flying'* what little parachute I did have away from the cliff, I bought extra time to deal with the deployment problem... which fixed itself after a few quick tugs and pulls on the steering lines in the right places."

MD: How do you use the Macintosh system in your work *(jumps)*? **TB:** "The raw footage I shoot using digital cameras is of excellent technical quality for colour, resolution and picture clarity. The majority of our *'final products'* end up on VHS tape, which is inherently lower quality than digital *(for a number of reasons)*. My aim is to keep my footage at *'first generation'* quality level right through the

editing process, and then cut it to VHS as a final product. Using the Firewire and Digital editing software capabilities of the iMac DV makes this possible. Most importantly for me, it made it possible in an intuitive and easy-to-use package that went from end to end in the editing process. Capture from digital. Edit in Digital, Export and store/archive to digital *(prior to exporting again to VHS).*

"Time is my most precious commodity - as I am always racing to be on the next plane load into the sky. Given my solid background with computers in general *(ranging from PC's through to Mainframes)* I found the **iMac, MacOS/9,** and **iMovie** joyously easy to navigate around and simple to use... which in my world translates to speed!

"I use this *'speed'* advantage in one of two ways - either to improve my turnaround time to get products to my customers and get back in the air - OR - where circumstances dictate - to provide an extra level of attention to detail that comes from having good tools, and the time to use them.

"I ask myself one question now. Windows? Why bother..."

"The iMac comes with me to the Drop Zone most weekends, and lives quietly and happily in the dubbing room. I log on with my voice password, which keeps it safe from curious onlookers, and have all the tools I need to produce snappy videos right there on the desktop. For quiet or rainy days, the odd game of Unreal Tournament doesn't go astray either! Better still - I can grab the phone line and get my email right there on the spot - no mucking around with extra cables, modems and the like.

"Finally - it looks cool and professional - which is all the edge I need in the competitive world of sport skydiving! My customers see it - ask about it, I show them a demo of the work I do, and the product virtually sells itself ..."

MD: What do you like the most about Macs? **TB:** "Versatility - work, play and communication - all in one. Ease of transport - sure! a **Powerbook** would be nice, but.... one cool looking unit in a protective soft cover - combined with plenty of TLC from me in getting it to and from the Drop Zone... the iMac handles it just fine. Ease of use. I ask myself one question now - Windows? Why bother..."

MD: In your opinion, has skydiving evolved over the past 10 years? If yes, how and why?
TB: "Massively! I can't comment all that well on the ten-year time frame, as I haven't been in the sport that long! IT has certainly changed from the visions people have of World War II mass drops of troops under leg-shattering, back-breaking, round parachutes. Round parachutes carry a strange stigma and amusement now amongst today's *'younger'* jumpers who are only familiar with Ram-Air *'square'* parachutes that fly much more like a real wing, with forward speed, *'steerability'* and lift.

"The build quality and technical advancement of skydiving equipment, and camera / video equipment for that matter have all improved - making things safer, easier, more productive and less taxing on the brain and time *(not so sure about less taxing on the wallet though!)*

"The disciplines of skydiving are also expanding to many new horizons, as people explore the boundaries of *'body flight'* in many new shapes and forms. The very nature of the people in the sport ensures that skydiving remains a growing and progressive activity.

"Change is balanced by careful regulation and oversight of the many aspects of sport skydiving, ranging from parachute and equipment rigging standards and certification, right through to international licensing and skill measurement of jumpers ability. This balance of progression and regulation makes for some very interesting debate - but discussion is always a good thing where people are open-minded enough to learn from what they discuss!"

MD: Any other comments or suggestions? **TB:** "Everyone should try *(skydiving)* at least once, regardless of age, fear, or any other factor!" ✠

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Behind Spiderdance

STEVEN HOFFMAN SPEAKS WITH MACDIRECTORY

Partially owned by *Macromedia*, **Spiderdance** is at the forefront of interactive television. Spiderdance's infrastructure technology is best embodied by their patented sync engine. Empowering viewers while putting to rest the passive television watching experience, Spiderdance is poised to take full advantage of convergence.

On November 29, 1999, after waves of positive publicity, **WebRIOT** made its debut on *MTV*. The ground breaking program ran for two seasons, ushering in a new interactive era for television. Spiderdance is currently working with the *Discovery Channel* on their *HistoryIQ* program, as well as other projects for *TBS* and *Sony's Game Show Network*.

Last year *Macromedia* and Spiderdance announced a strategic partnership to develop Internet/TV convergence technology based on *Macromedia* products. At the time, Spiderdance CEO *Steven Hoffman* said:

"This is a revolutionary step forward for interactive television. By building *Macromedia* technologies into our system, we open up interactive TV programming to hundreds of thousands of *Macromedia* developers. This means anyone who is familiar with *Macromedia Director* and *Flash* will potentially be able to leverage their skills to create new types of interactive TV content."

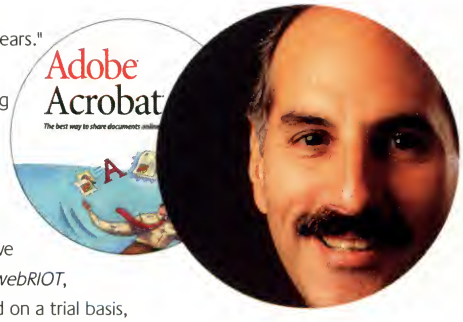
More recently, Spiderdance and interactive television and strategy leader *Cylo* announced a partnership. This partnership exposes Spiderdance to *Cylo's* client base of advertisers, which includes *HBO, Nike, USA Networks* and *Texaco*. MacDirectory chatted with Spiderdance's CEO Steven Hoffman several days after the *Cylo* partnership was announced.

MacDirectory: *Cylo's* experience in broadcast production combined with Spiderdance's success providing interactive solutions creates an interesting synergy. How did this deal come about?

Steven Hoffman: "*Rob Davis*, Spiderdance's New Jersey based Executive Producer (*who joined Spiderdance from MTV where he was Executive Producer of Convergence*) has known *Kirsten Jansen*, *Cylo's* Chief Information Officer, and *Kirt Gunn*, their Chief Marketing Officer, for several years."

MD: *webRIOT* was a ground breaking moment in the road to convergence. Could you place it in its historical context?

SH: "*webRIOT* was a first in interactive television in many respects. Before *webRIOT*, interactive TV was typically deployed on a trial basis, limited in number of homes or geographic area. Also most ITV applications were add-ons to existing shows.



"*webRIOT* was the first daily interactive television show that could be used on nationwide reach basis. *webRIOT* could be used by any of MTV's 75 million subscriber households that had an online PC in the same room as the TV. webRIOT was also the first nationwide TV show to be designed from the ground up to be fully interactive."

MD: *AtomShockwave* is also backed by Macromedia. Do you work with them? If so, how?

SH: "Spiderdance and *AtomShockwave* both see a variety of synergies between us and have had ongoing discussions about working together."

MD: Will e-commerce ever become wildly profitable over interactive television?

SH: "Absolutely yes! TV is the most powerful marketing medium today and watching TV is America's #1 leisure activity. Combining TV with online capabilities for e-commerce and ad targeting will make "t-commerce" a very sizeable business. Today, conventional "direct response" TV (home shopping networks and informercials) generates an estimated $9 billion dollars in sales. Forrester estimates that ITV will generate a total of $20 billion US in revenue $11 billion in advertising, $7 billion in eCommerce, and $2 billion in various subscription fees by 2004."

MD: How far away are we from convergence?

SH: "It's already here. The convergence of TV and the Internet is happening now in tens of millions of American homes via people watching TV while online. The one million registered users for *webRIOT* reflects this. "

Bruce Chizen Speaks

ADOBE NEW CEO PROVIDES COMPANY VISION

ADOBE'S NEW CEO BRUCE CHIZEN RECENTLY SPOKE TO MOTLEY FOOL ABOUT THE A WIDE RANGE OF ISSUES, INCLUDING THE FUTURE OF THE COMPANY HE INHERITED.

IN THE CURRENT ECONOMIC SLOWDOWN, CHIZEN EXPRESSED CONCERN OVER THE IMPORTANCE OF A CEO'S VISIBILITY WITH REGARDS TO INVESTORS. "WE TAKE A GUESS AT WHAT REVENUES ARE GOING TO LOOK LIKE OVER THE THREE-YEAR PERIOD BASED ON WHAT WE THINK THE MARKET OPPORTUNITIES ARE BASED ON THE PRODUCT ROAD MAP," SAID CHIZEN. HE CONTINUED: "REALISTICALLY, WE WORK OFF A ROLLING QUARTERLY FORECAST THAT LOOKS OUT FOUR QUARTERS." SPECIALIZED KNOWLEDGE OF THE FOUR QUARTERS VIA THE QUARTERLY ROLLING FORECAST (QRF), HOWEVER, LEAVES THE SECOND HALF OF THE YEAR PARTICULARLY OPAQUE.

ADOBE HAS BEEN NOTEWORTHY IN GIVING NEAR ACCURATE NUMBERS. CHIZEN SAID OF VISIBILITY: "IF YOU LOOK AT OUR PERFORMANCE OVER THE PAST TWO YEARS IN TERMS OF GUIDANCE, WE'VE BEEN PRETTY CLOSE. OF COURSE, NOT 100% BECAUSE THAT'S IMPOSSIBLE, UNLESS WE WERE DOING SOMETHING ILLEGAL, BUT WE'VE BEEN PRETTY CLOSE."

BRUCE CHIZEN ALSO TALKED A BIT ABOUT STRATEGY IN RELATION TO COMPANIES LIKE MACROMEDIA, WHICH HE DID NOT MENTION BY NAME. ADOBE'S STRATEGY FOCUSES ON MULTIPLE PLATFORMS AND, OF COURSE, THE POPULAR ACROBAT. "ACROBAT SEEMS TO BE BOOMING, DESPITE THE ECONOMIC SLOWDOWN. IT GREW 42% YEAR-OVER-YEAR. EVEN THOUGH COMPANIES ARE CUTTING BACK ON THEIR SPENDING, THEY'RE ALL MOVING FROM PAPER-BASED TO WEB-BASED WORKFLOWS."

FINALLY, CHIZEN SPOKE ABOUT THE IMPORTANCE OF SECURITY, "WE'RE MAKING SURE OUR PRODUCTS ARE BUILT IN SUCH A WAY TO INCORPORATE THE LATEST ENCRYPTION TECHNOLOGY," SAID CHIZEN.

> ALL INTERVIEWS BY RON MWANGAGUHUNGA

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Thinking Different about Surgery

TECHNOLOGY BRINGS MEDICINE TO NEW DIMENSIONS

GAMMA KNIFE SURGERY HAS CREATED HOPE WHERE, UNTIL RECENTLY IN MANY CASES, THERE WAS NONE. MULTIPLE SPACED OUT TUMORS, FOR EXAMPLE, HAD VERY LOW RATES OF SUCCESS IN SURGERY BEFORE THE GAMMA KNIFE. BUT WHAT IS THIS GAMMA KNIFE?

The Gamma Knife is not a "knife" at all, but radio surgery developed by neurosurgeon **Lars Leskell** in the 1980s. By using equipment that fires 201 beams of cobalt-60 radiation into affected areas of the skull, the Gamma Knife targets diseased tissue while sparing nearby normal tissue. Leskell eliminated the need for an incision, thus minimizing the risks of bleeding and infection.

The Gamma Knife is complex medical technology evolved from miniaturized 'personal' computers like Apple. In fact, Apple is a particular favorite among neurosurgeons like Dr. **Richard Kim**, who uses a Wallstreet-class *Powerbook* to make digital photos of the brain to plan operations and keep a database of his patients.

Gamma Knife treatment lasts from between 15 and 45 minutes, and is dramatically more cost effective at $20,000 on average, than brain surgery. During the treatment, the patient is sedated and feels no pain.

In addition, recovery time is greatly reduced. **Ella Tong**, who underwent the treatment for four spaced out inoperable brain tumors in January, had the treatment in the morning and left in the afternoon.

Ms. Tong recounted to the Honolulu Advertiser:

"I got there at 5:30 in the morning and left about 1:30 or 2 in the afternoon. They want you to sit quiet for a while because the holes might bleed, and it lets them heal up. But they're less than a centimeter, and they put Band-Aids on."

MacDirectory briefly chatted with Dr. **Maurice Nicholson**, Medical Director of the *Gamma Knife Center of the Pacific*. Dr. Nicholson has been one of the most tireless popularizers of this rare machine. In the world, there are only 148. Dr. Nicholson recently scheduled a Web chat about the process for a specifically Canadian audience.

MacDirectory: Why Canadians for this venture?

Dr. Nicholson: "There is no gamma knife in Canada, so there is a potential market."

MD: This is a very interesting concept as the health care space is about to explode.

DN: "Yes, I agree."

MD: Thus far, the health care Web has been used for either: (a) a cost saving system, or(b) a space for hope and support. Does this chat fall into either of the two categories? If not, what does it fall under?

DN: "(b) as people do not know about the technology which can treat problems that they thought were untreatable. (This chat) also falls under business development as we hope to find patients."

MD: What are your hopes that this chat will accomplish?

DN: "Educate people and have patients travel to Hawaii if there is no GK in their area."

MD: Could you name the people who put this together?

DN: "Basically my idea with most of the work done by GK staff and *Moon Yun Choi*, Public Relations Coordinator at *St. Francis Healthcare System* of Hawaii."

MD: The Gamma Knife procedure is very specified major surgery, is that correct? Why start out with a chat on this magnitude? Why not begin with something less specialized and more common?

DN: "We do gamma knife surgery, which is not surgery as there is no cutting or blood loss and patients can return to there normal activities the following day."

FOR MORE INFO GO TO WWW.MACDIRECTORY.COM

MACSTAR ON NAPSTER

AS NAPSTER SLOUCHED TOWARDS AN UNFAVORABLE VERDICT, MACDIRECTORY CAUGHT UP WITH NICK FROM MACSTAR.COM TO WEIGH IN ON THE CONTROVERSY SURROUNDING FILE SHARING.

MACDIRECTORY: WHAT DO YOU THINK ABOUT NAPSTER'S TREATMENT IN THE COURTS?

NICK: "AS MUCH AS I LOVE NAPSTER, I CAN SEE WHY THEY WOULD BE SUED. THEY WERE CAUSING RECORD COMPANIES TO LOSE MONEY, EVEN IF IT WASN'T TO MAKE A BIG DIFFERENCE."

MACDIRECTORY: DO YOU THINK THE TECHNOLOGY IS HERE TO STAY?

NICK: "NOT AT ALL. BACK IN THE 70'S, BELLBOTTOMS WERE THE WORN BY ALL. THEY DIED AND WERE REBORN AT OLD NAVY IN THE PAST FEW YEARS. I DON'T THINK NAPSTER WILL BE ALIVE FOREVER, BUT I GUARANTEE SOMEONE WILL DO SIMILAR IN THE FUTURE."

MACDIRECTORY: WILL THE RECORD LABELS EVER MAKE A DEAL WITH NAPSTER?

NICK: "I SERIOUSLY DON'T KNOW. THAT WOULD CAUSE NAPSTER TO PAY A LOT OF MONEY, AND I AM NOT SURE HOW MUCH THEY HAVE TO SPEND. HOWEVER, I SURE HOPE THEY DO."

MACDIRECTORY: WHAT DO YOU THINK ABOUT APPLE'S LATEST EMBRACE OF MUSIC?

NICK: "I THINK APPLE IS TRYING HARD TO SATISFY USERS NOW, AND THAT IS GOOD, BUT WHAT THEY ARE DOING IS PUTTING OUT MANY MAC BASED COMPANIES WITH THEIR PRODUCTS THAT CAN'T BE COMPETED WITH."

> ALL INTERVIEWS BY RON MWANGAGUHUNGA

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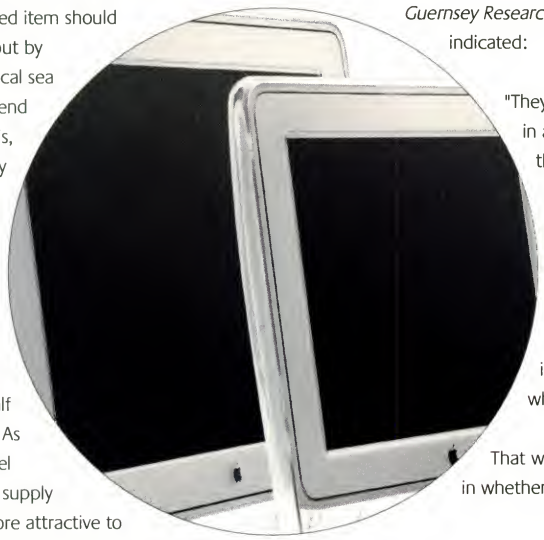
Apple Displays

WILL APPLE PHASE OUT ITS TUBE MONITORS?

Joe Wilcox, *CNet News* group, recently reported that Apple Computer plans on phasing out bulky tube monitors, switching to flat panels. Distribution sources indicated that *Apple's 17-inch* cathode ray tube is being retired as they build a transition to more elegant LCD or flat panel monitors.

While the LCD's would better please the aesthetic sense of many of Mac faithfuls, analysts warn that it would come at the cost of a raise in price. In this economy, and keeping in mind the *G4 Cube* debacle, a higher priced item should be carefully thought out by Apple. The technological sea change that a higher end monitor might cause is, however, supported by Apple's sales analysis.



More than seventy percent of Apple's retail display revenue comes from LCD models, which account for almost half of all Apple monitors. As prices for the flat panel monitors drop on the supply side, they become more attractive to Apple for their cost effectiveness. And those dropping prices could ultimately be reflected in the cost to consumers.

"Obviously, through Apple's own analysis of its sales, most of the customers are going for the LCDs," said *Technology Business Analyst* **Tim Deal** to CNet.

While Apple has remained characteristically mum on the possibility of this new direction, one thing is for certain: the price for Apple systems will increase should they switch to flat panels. In a soft economy rising prices worry analysts.

Currently Apple's CRT has a 15-inch flat panel known as *Apple Studio Display*, which is $799, and a 17-inch CRT priced at $499. Two problems arise with this: one, the Apple customer would have to pay $300 more for the 15-inch, which has less viewable area. Second, there is the problem of low end competition, which has not yet been factored in, but which will flood the market with even cheaper alternatives of comparable size.

Can Apple brand loyalty win out over such massive price differentials? Apple has gone down this road before. In many ways, the recent surprise profitability of Apple against the tide of beleaguered PC companies bears this out. Apple does not compete against other PC's in the same way that the boxmakers compete against one another. How strong brand loyalty is, however, will certainly be tested.

The final mitigating factor is last summer's *Samsung* investment. In July 1999, Apple Invested $100 million in the monitor maker.

Guernsey Research analyst **Chris LeToc** indicated:

"They do have an investment in a panel provider and that means that they are assured of supply and an opportunity to be aggressive on pricing, ... It's part of Apple's wanting to be at the forefront of technology innovation and the whole design thing,"

That will certainly be a factor in whether or not Apple succeeds.

Apple Forecasts Slowdown in Europe

According to Apple Computer Inc. Chief Financial Officer **Fred Anderson** the U.S. economic weakness appears to be spreading to Europe and other markets after the second quarter profits reports.

Mr. Anderson told *Reuters* "Although Europe continues to do well, we are beginning to see some early signs of softening in Europe, which I think kind of lagged behind the U.S."

"On a sequential basis we had the strongest performance in terms of increase in revenues in both the U.S. and Japan."

Mr. Anderson said second fiscal half revenue would be $3.2-3.4 billion, which would take full-year revenue to $5.6-5.8 billion, below his $6 billion forecast made at the end of the previous quarter.

Apple & Law Firms

The American Bar Association reported that between 1998 and 2001, Apple enjoyed a jump of more than 220 percent in the number of law firms using Macintosh systems. The latest study is a combined study that looked at small, medium and large firms together. The survey found that many law students (30-40 percent) use Apple computers.

Bill Gardner, technical administrator with the Charleston law firm of *McQueen Harmon & Potter LC*, said that while Apple computers have always had a "foothold" in the legal profession, the maker is now gaining ground, chalking much of the credit up to the 1998 introduction of the Apple iMac, a low-priced, easy-to-use, self-contained machine. "IMacs were the first sub-$1,000 machine," Gardner said. "I don't know how many attorneys switched."

Apple Hires Okamoto

APPLE'S NEW VP OF DEVELOPER RELATIONS

APPLE HAS ANNOUNCED THAT RON OKAMOTO HAS JOINED APPLE AS VICE PRESIDENT OF DEVELOPER RELATIONS, REPORTING TO APPLE CEO STEVE JOBS.

OKAMOTO WAS PREVIOUSLY VICE PRESIDENT OF PRODUCT MANAGEMENT AND MARKETING FOR GRAPHICS PRODUCTS AT ADOBE SYSTEMS, WHERE HE WAS RESPONSIBLE FOR THE WORLDWIDE MARKETING AND MANAGEMENT OF MANY AWARD-WINNING PRODUCTS INCLUDING PHOTOSHOP, ILLUSTRATOR AND AFTER EFFECTS. PRIOR TO JOINING ADOBE, OKAMOTO WAS DIRECTOR OF PRODUCT MARKETING AT MACROMEDIA, INC. OKAMOTO HOLDS A BACHELORS OF SCIENCE DEGREE IN BUSINESS ADMINISTRATION FROM THE UNIVERSITY OF SOUTHERN CALIFORNIA.

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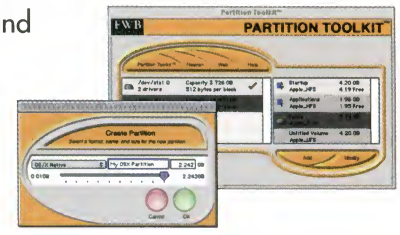

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Apple Stores

APPLE BOUTIQUE STORES > WILL THEY SUCCEED?

YOU HAVE TO HAND IT TO APPLE: THE COMPANY HAS A STOIC SENSE OF KEEPING QUIET UNDER PRESSURE. REAL-ESTATE BROKERS AND CITY OFFICIALS INVOLVED IN SECURING STOREFRONT SPACE FOR APPLE ACROSS THE UNITED STATES, UNFORTUNATELY, WERE NOT BOUND BY CONFIDENTIALITY AGREEMENTS. UP UNTIL THE LAST MOMENT, HOWEVER, APPLE KEPT MUM ABOUT THEIR RETAIL STORES.

Now the cat is out of the bag. On May 19, Apple unveiled the first of its retail stores in *Northern Virginia*. The investigative reporting team of **Jeff Valvano** and **Eric Yang** first broke the story way back in July 2000 with a detailed report. Their initial story was on Apple's plans to buy a Palo Alto location to build a retail operation. Last year, behind the scenes, Apple bought property in Palo Alto.

Palo Alto City Senior Planner **Amy French** was first in a long round of city officials to spill the beans when she told Reuters that Apple had applied for approval to modify the space and that the company was tentatively planning an April opening. Members of Palo Alto's architectural review board began speaking to press outlets about the plans Apple had shown them.

Soon after, municipal officials began to leak word of negotiations around the country. Just then, a mysterious job listing for Apple Retail in Minnesota showed up on the *Monster.com* job message board. The job description was looking for "trained technical support" for a "special project" in the Minneapolis area. The hunt was on, and the technology press journeyed to the heartland to get the scoop. That position on the Monster Board was for the planned Apple Retail store in the *Mall of America* in Bloomington, Minnesota.

The *Mall of America* is an excellent choice to open a retail outlet. Since opening its doors in 1992, the Mall has become one of the most visited locations in the U.S. Annually, more visitors trek to the *Mall of America* than Graceland, the Grand Canyon and Disney World combined. After Minnesota reports as far flung as Glendale, Calif., Pittsburgh, Chicago, and even New York began to surface. There are initial plans for 50 stores in upscale cities across America. Ultimately, however, that figure is rumored to reach more than 100 stores within the next five years.

On April 5, *The Chicago Tribune* reported that Apple had signed a long-term lease for the 679 N. Michigan Ave. building which once housed a *Gap* flagship store. The Apple Store move is widely seen as being influenced by retail whiz, Gap President and CEO **Millard Drexler**, who joined the Apple Computer Board of Directors in May 1999.

And then there were the suspicious hires. In late 1999, Apple hired **Allen Moyer** as the suspicious sounding Vice President of Real Estate, Construction and Facilities. Moyer, a former *Sony* executive, has been involved in retail projects such as the futuristic Metreon in San Francisco.

At the time, **Fred Anderson**, Apple's Chief Financial Officer said, "His proven track record in managing large, complex projects coupled with his exceptional leadership reputation will be a great addition to the Apple management team."

New Yorkers are especially pleased about developments as Apple is reportedly planning two stores in Manhattan. One uptown at 73rd and Broadway, and one downtown in the ultra fashionable Soho. In Soho Apple will take over the old Prince Street Station post office. Fisher Development Inc., a San Francisco construction firm that has built every *Gap* and *Banana Republic* store, will build many of the stores.

One big question is what Apple dealers think about the stores. Initial reaction has been surprisingly calm. To be more exact, the larger dealers are reacting with relative calm to the announcement. Larger dealers can use the opportunity to expand, as Apple products have always been niche. Smaller dealers have expressed disappointment in the press. Smaller dealers, however, have an excellent opportunity to gain from Apple's higher profile in the fields of support and repair.

The Apple Store on May 19th in *Tyson's Corner*, McLean, Virginia will be the first. The next store, in the *Glendale Galleria* in Los Angeles, will open Saturday, then the next one will open in 6 to 8 weeks. Thereafter, a new Apple store will open, roughly, every ten days until the end of 2001. Ultimately, Apple plans 25 stores in all this year.

Steve Jobs' reasons for the move were compelling and signalled one of Apple's most aggressive attempts to gain market share in the history of the company. In the talk, Jobs stressed the importance of pushing beyond Apple's 5% market share and into the great void, 95% of non-Mac PC users. Apple's 5% market share translates into 25 million users which, Jobs said, was a better market share than other luxury brands, like Mercedes, have in the automotive market. Jobs comparison of Apple as a luxury brand comparable to Mercedes was provocative. This, combined with Apple's targeting of hip "*lifestyle centers*" for retail store sights reveals much of the mindset behind marketing.

Apple CEO Fred Anderson, who was also present at the press event, predicted in front of the assembled press that Apple will break even by the end of 2000, and, surprisingly turn a profit in 2002.

Structurally, each retail store will be divided into several sections, including, among others:

THEATER > The 10-foot diagonal screen will serve as an area for demo's. New products as well as iMovies and current products, like Mac OS X, will be featured.

GENIUS BAR > The Genius Bar will be a sort of hang out/ ask questions space where members of the Mac community can connect and ask questions.

IMOVIES > Potentially a very popular spot in the chain. A spot for the future independent film maker to check out the latest technology. Digital video cameras will also be sold.

PHOTO > Digital photography can be sent via email and/or posted on your own web site. Digital cameras will be sold and demonstrated.

KIDS > The educational software and games space. This space will help familiarize children with Apple products as well as serve as an important place to boost K-12 educational market share. Kids will be able to buy over 300 software titles.

MUSIC > Potentially the most important part of the store for high school and college students. A place to learn about burning CDs on a Mac.

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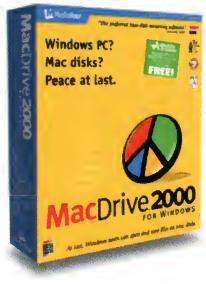

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Apple vs Dell on Education

PC WARS: APPLE, DELL AND EDUCATION

Dell has concentrated this year on cementing its impressive victory over *Compaq* in industry-standard server sales in the United States during the first quarter of 2001 as well as gaining the top sales in PCs and Intel-based servers. While *Dell* marshalls its considerable PR forces in dealing with *Compaq*, Apple has launched several new attacks on Dell's education market share recently.

Apple's new 4.9 lb *iBook* is the most serious challenge to Dell's educational market share leadership. The new iBook will be strategically positioned toward educational institutions as they make their lists and purchases in technological equipment for academic year 2002. As the Apple Web site says of the iBook:

"(It is) The perfect size and shape to fit in your backpack ..."

Steve Jobs and **Cheryl Vedoe**, Vice President, Education Marketing and Solutions, are waging one of the most aggressive campaigns to regain dominance in educational market share in the history of Apple.

The new *iBooks* will sell for $1,299, but schools will be able to purchase them for $1,199 each. Cost is, without question, the most important factor in technological purchases in our cash strapped educational system. According to the *U.S. Department of Education*, schools are only able to spend about 2% of their annual budgets on technology purchases. Dell has been successful in gaining market share because of their aggressive price cutting strategy --which is extremely attractive to educators-- as well as taking advantage of Apple's missteps in the market.

Aside from *iBook*'s price, which is very affordable by Apple standards, mobile computing with an AirPort-ready computer allows students to share work more easily than, say, with a desktop computer, while at the same time cutting costs.

Last week Apple announced the *Apple Teacher Institutes*. The Apple Teacher Institutes are a series of hands-on technology workshops for *K-12* educators this summer that will span across the United States and Canada. The courses are aimed at exploring the uses of technology in education and will be underwritten by Apple Computer Inc. These workshops are widely seen as exercises in building brand loyalty and making educators aware of the quality of Apple products.

Will schools continue to side with *Dell*'s products with their low price tags, or will schools go with Apple's specially tailored for the educational process computers at higher costs? Quality or cost? Only time will tell.

Millard Drexler & Apple Stores

Other than **Steve Jobs**, Millard "Mickey" Drexler was the person most responsible for the Apple retail stores. Drexler is, without question, one of the foremost experts in the retail industry.

Millard Drexler came on board at The *Gap*--then already hugely profitable--in 1983. By the late 80s, Gap had moved from a low to middle end apparel retailer to a chic, yet affordable goliath. Drexler managed to provide the illusion of "upscale" in the perfectly ordinary. Gap was embraced by both the hip hop and suburban cultures. Designer blacks and khakis are central to the vocabulary of chic in the United States, and Mickey Drexler is largely responsible.

Steve Jobs began cultivating Mickey Drexler seriously at the beginning of 1999. After a five month whirlwind courtship in May, Drexler joined the Board of Directors at Apple. Gap's dominance as the number one apparel retailer is intimately connected to Millard Drexler's hands on expertise in specialty retail. Steve Jobs, a visionary man and fast learner, as well as Apple, will benefit greatly from Drexler's guidance in the transition into high-end retail.

Apple Daily News

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MAC OS X WHAT COMES NEXT?

AFTER LITERALLY YEARS OF WAITING, NOW THAT MAC OS X IS OUT, THERE IS A GREAT CURIOSITY AMONG THE MAC FAITHFUL AS TO WHAT COULD POSSIBLY BE THE NEXT ACT FOR APPLE. BEFORE WE SPECULATE ON THE NEXT COURSE, WE SHOULD EXAMINE THE MEAL ON OUR PLATE. FROM SOUP TO NUTS, MAC OS X OVERHAULS THE OPERATING SYSTEM.

SIXTEEN YEARS IN THE MAKING, MAC OS X IS A CLEVER MIXTURE OF APPLE, SOME OF THE BEST OF UNIX AND SOME OF THE BEST OF WINDOWS. WHILE HEARING THIS MAY DISTRESS THE DIE HARD MAC USER, ALL WORRIES DISSOLVE ONCE YOU BECOME ENGAGED IN ITS SINGULARLY ELEGANT EXPERIENCE.

LINUX, LIKE APPLE, HAS A DEVOTED CULT FOLLOWING; UNLIKE APPLE, HOWEVER, LINUX IS LACKING IN STYLE AND DESIGN. MAC OS X WILL PROVE A GREAT TEMPTATION TO FANS OF UNIX. SOME CRITICS HAVE REFERRED TO MAC OS X AS "UNIX MADE EASY WITH A SENSE OF STYLE." CERTAINLY THIS OPERATING SYSTEM HAS GLAMOUR. MAC OS X IS THE MOST GLAMOUROUS OPERATING SYSTEM EVER ATTEMPTED.

"MAC OS X IS THE MOST IMPORTANT SOFTWARE FROM APPLE SINCE THE ORIGINAL MACINTOSH OPERATING SYSTEM IN 1984 THAT REVOLUTIONIZED THE ENTIRE INDUSTRY," SAID STEVE JOBS, APPLE'S CEO IN A PRESS RELEASE."WE CAN'T WAIT FOR MAC USERS AROUND THE GLOBE TO EXPERIENCE ITS STABILITY, POWER AND ELEGANCE."

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Why did Apple kill Newton?

THE MAC COMMUNITY RESPONDS

MacDirectory asked **Doug Luckie** of the Michigan State Palmtop User Group (MSPUG) and a frequent writer as well as expert on the Newton, why he thought Apple killed the program years ago. This is a series of articles in which MacDirectory asks several prominent members of the Mac community, why Apple may have given up its first mover lead in the PDA market. For other articles go to: www.macdirectory.com/4u/Wire.html

Why did Apple Kill Off the Newton?

"Well, I believe Steve Jobs stopped the Newton effort as well as other peripheral thrusts at Apple in an attempt to focus and 'save' the company. If you recall at the time Newton was killed, Apple had many obituaries being published about itself in the popular press. My unit (at Michigan State University) attempted to halt all purchases of Macintosh computers because the IT guy said: "Apple will be out of business in a few years." In the end, Jobs saved Apple and turned around the company to once again be insanely-great.

"The Newton was an elegant PDA and even today it's sophistication is unequaled (Pocket PC comes close but no cigar). Both its hardware and software were years ahead of the competition and still are in many ways. The Newton was 'magic.' When you wrote and handwriting turned to text or the Intelligent Assistant scheduled "lunch with Bob on Tuesday" for you, you 'wow'ed the crowd' whatever the venue. Yet the last Newton MP2100 was very large and the Palm was tiny in comparison. In addition the MP2100 didn't sync well with the desktop and the tiny Palm could. When the Newton died, almost all the enthusiasm moved eventually to the Palm platform. Yet, I think innovation in the PDA world slowed to a crawl after Newton died. Palm didn't really change at all until IDEO polished up the design for the Palm V (but even that isn't a revolution). Microsoft did what it knows best. It copied whatever looked the best and finally in rev 3-4 of Windows CE, the Pocket PC, got at something pretty good, especially when running on the hardware provided by Compaq's iPaq. Now Palm is chasing the color, sound, and multimedia capabilities of Pocket PC.

"My personal preference for very small devices is exemplified by my recent purchase of the Palm m505. Much has changed since I cherished my MP2100, even the Compaq iPaq is too large for me now (and of course it refuses to work with top of the line desktop OS's).

An Apple For Oprah

Oprah Winfrey and Apple Computer

The first thing that comes to mind when the word 'Oprah' is mentioned is usually television, or perhaps the book club, or maybe even her production company Harpo. But Oprah Winfrey also has a history of supporting the internet and, in particular, Apple products. More to the point, Oprah has always worked hard to make sure her audience was not caught in the digital divide.

Never one to miss out on a media opportunity, Oprah began, in earnest, researching the web. In 1999, Oprah hooked up with the web savvy **Omar Wasow**, CEO of *BlackPlanet.com*. In addition to helping her navigate the menacing World Wide Web, they formed a friendship. Together with *The Oxygen Network*, a multimedia online and television company aimed at women viewers, they put together an instructional series called "Oprah Goes Online' to bridge the growing digital divide between the sexes.

Geraldine Laybourne, CEO of Oxygen Media, helped put the program together. The former head of *Nicolodeon*, Laybourne brought the channel from the brink of relative obscurity and made it the number one destination for kids, as well as programming the still popular *Nick at Night*, for nostalgic twentysomethings. A friend of Oprah's, Laybourne approached her about putting the show on Oxygen. And so began the historic series: 'Oprah Goes Online.'

In the series, Oprah literally learns, side by side with her viewers, the intricacies of everything internet, from email and search engines to shareware and finding lost friends online. She plays the role of, and is essentially the beginner, while Omar Wasow is the patient teacher. This brilliant series helped bridge the digital divide, drawing in thousands of viewers, mostly women, who trusted the Oprah brand name. Highlights can still be viewed at: *www.oprahgoesonline.com*.

Oprah Goes online was put together with the same attention to detail that she puts into her movies, her production company and her other business ventures. One notable show had her navigating auction sites with none other than *Amazon.com* CEO **Jeff Bezos**. At the time, Bezos said in a statement:

"We're honored that Oprah has asked us to introduce her and her fans to the excitement of the Internet and the online auction experience."

Indeed. Longtime friend **Gayle King**, Omar Wasow and expert guests guided many who were left behind in the digital boom of the early 90s towards online competence. The classic twelve part series remains a popular video selection in libraries and video stores across the country.

But that was not the end of Oprah's online adventure. Her appetite whetted, Oprah took a more serious managerial role in her web site. With knowledge gained from the experience of the series, Oprah saw the benefits of the web; for example, Oprah saw how the web could more clearly communicate the same sort of spiritual issues her television show promotes.

Nowadays, all of her multimedia ventures: *The Book Club*, the *Angel Network*, upcoming programs, archived shows, ticketing information, and even those famous lifestyle makeovers, are all neatly archived on her website. *Oprah.com* is one of the best organized sites in cyberspace.

As a fitting conclusion to Oprah's evolution, she has recently taken a fancy to Apple products. In the February 2001 issue of The Oprah Magazine, 'O', Oprah lists the G4 cube as one of her favorite things.

She writes:

"I saw this (Cube and 15" Display w/Speakers) at Bette Midler's house and immediately wanted one for myself. It doesn't obstruct your view or clash with your furniture ... This computer offers great performance with savvy style."

Oprah's not so bad herself. ✠

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CLAUDIA SCHIFFER

IMAGES BY REAGON CAMARON > INTERVIEW BY RON MWANGAGUHUNGA

CLAUDIA SCHIFFER EMBODIES THE TERM SUPER MODEL. SHE'S BEEN ON JUST ABOUT EVERY MAGAZINE COVER, IS THE FACE REPRESENTING SOME OF THE LARGEST COSMETIC EMPIRES IN THE WORLD, HAS WRITTEN AND ACTED. BUT CLAUDIA SCHIFFER DOESN'T LIKE THE TRAVEL ASSOCIATED WITH MODELING. "HAVING TO TRAVEL SO MUCH ... I DON'T GET TO SPEND AS MUCH TIME WITH MY FRIENDS AND FAMILY AS I'D LIKE."

Claudia recently turned 30, and almost half her life has been spent walking from one photo shoot to the next. While the work is hard, Claudia is most remarkable for the longevity of her supermodel status.

"There are a few models whose careers have lasted quite a long time and continue to flourish, like **Isabella Rosellini** and **Lauren Hutton**. They both have a timeless quality to them. That, coupled with continued professionalism, are essential to maintain long-lasting careers."

For more than ten years Claudia has been a supermodel, commanding the top salaries and gracing the covers of over *500 magazines*. Born in *Rheinberg*, outside *Dusseldorff*, *Germany*, Claudia now lives in New York, Monaco and Majorca.

"I spent several years devoting all of my time to work. I now realize that success is worth nothing if you can't enjoy it. I value learning to enjoy life."

"THE MOST IMPORTANT THING THAT I'VE LEARNED IS TO KEEP EVOLVING AND REACH PAST YOUR COMFORT ZONE TO BE SUCCESSFUL."

Schiffer's career began when she was discovered in a German discotheque in 1987 by **Aline Souliers** of the Metropolitan modeling agency. She got her start modeling in Europe, but quickly captured the imaginations of Americans, with thanks to the immortal *Guess* ad campaign of early 1989.

After achieving supermodel status, Claudia branched out, building several successful careers in the process.

"I have been fortunate enough over the years to work with many of the most talented designers in the business ... and (I) have learned quite a lot from each person in different ways. But the most important thing that I've learned is that you have to keep evolving and reach past your comfort zone to be successful."

Her role as *Greta* in **James Toback**'s *'Black and White'* earned Claudia good reviews and offers for more acting roles. Starting an acting career was a huge gamble for the model. Reaching past her comfort zone paid off, but it just as easily could have backfired.

"It's a lot more difficult to learn a new craft when you have to do it in such a public way. I have so much to learn about acting, and I wanted to be more subtle in my approach. When you are known primarily for your work in another profession, people are a lot more critical of your work in other areas."

Whether a supermodel, a restauranteur, the author of two books on the fashion world or an independent film actress, Claudia continues to surprise. In playing *Greta*, an Anthropology graduate student dating Grant, she starts opposite by New York **Knick Allan Houston** in the role, Claudia reveals a thoughtful side.

"Greta has been my favorite roll so far. But I also really enjoyed doing a comedic short film recently with **Steven Martin** based on the television show, *Blind Date* ... I identify with the side of (*Greta*) that believes that you should always be true to yourself, but then again, she has an evil side and shows no loyalty - which is completely opposite from me."

Finally, we arrive at Claudia's most recent metamorphoses into an entrepreneur with a dotcom site (*Claudiaschiffer.com*) and the new *Palm Vx* Claudia Schiffer Edition. Claudia has been compared in the press favorably to **Martha Stewart**, who launched a multimedia organization recently.

"I NOW REALIZE THAT SUCCESS IS WORTH NOTHING IF YOU CAN'T ENJOY IT. I VALUE LEARNING TO ENJOY LIFE."

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"That's quite a compliment, but what (*Martha Stewart*) offers on her site is much more extensive as far as merchandise, and information on how to use her products."

Claudiaschiffer.com will become an ecommerce destination specializing in travel accessories, cell phones and even sexy t-shirts; in short, *Claudiaschiffer.com* will offer items which Claudia herself enjoys. Think of *Claudiaschiffer.com* as a destination portal for all things Claudia.

"The site is run by PTN Media, but in addition to that we have a designer for the site, and consultants. I have been very involved, however, in the creation and layout of the site. It's always been very important to me that I be very hands-on with the projects that I become involved with. If I don't have an interest in being personally involved, then I won't pursue."

"We are in the process of developing Palm carrying cases, which may be the next item offered on the site ... When I was developing my web site, *Claudiaschiffer.com*, I wanted it to be more than a visual site. I wanted to offer people cutting edge, innovative products, so I approached Palm about doing an exclusive edition."

The Aqua metallic blue Palm is sleek and aquiline, just like Claudia. Weighing in at just four pounds, the Palm Vx Claudia Schiffer Edition exudes a cool elegance, holding 10,000 addresses, 3,000 memos, and the emails of 400 of your nearest and dearest friends.

"I go online quite often when I'm traveling. I like to research the different cities that I'm planning to travel to, to find hotels, restaurants and places to shop. I also love to shop on *Ebay* and *Amazon.com* ... I buy a lot of things online, but my favorite thing to shop for is books."

The thirty year old supermodel has done more things in her short time than many people accomplish in a their lives. Michael Gross, the author of '*Model*,' once called Claudia Schiffer, "the model who doesn't make mistakes." Add onto that observation Schiffer's desire to take risks, and you have a most remarkable woman. ✠

SPECIAL THANKS TO > CLAUDIA SCHIFFER > REAGON CAMERON FOR ALL PHOTOGRAPHY > JOHN ROSAN AT NUCLEUS IMAGING NYC > STACY WOLFE AT POLARIS PR

"American Movie," winner of the Sundance Film Festival's 1999 Grand Jury Prize, is a funny and poignant documentary chronicling the struggles of independent filmmaker Mark Borchardt.

Living in *Menomonee Falls*, Wisconsin, Borchardt is obsessed with finishing his grand masterpiece "Northwestern." With no budget, he's forced to shelve his dream of a full-length feature. Not to be denied, he hits up his elderly uncle who begrudgingly parts with enough money for Borchardt to finish his half-completed horror-short "*Coven*" (mispronounced as co-ven).

Borchardt hopes he'll sell enough direct-to-video copies of "*Coven*" to pay back his uncle and fund "*Northwestern*."

In Borchardt, "*American Movie*" captures the spiritual embodiment of many indie-filmmakers who are consumed with making their own "*Citizen Kane*," or in Borchardt's case, "*Texas Chainsaw Massacre*."

Emerging digital technology – cameras, editing tools and projectors - promises to make filmmaking easier for people like Borchardt, and other students of '60s do-it-yourself filmmaking pioneer **John Cassavetes**.

Action!

Many directors, both aspiring and established, are choosing digital video (DV) for their latest projects. Many are attracted to DV because it's cheaper to produce, edit and distribute than traditional 35mm film stock.

An hour's worth of film costs thousands of dollars compared to a $10 DV tape that will hold the same amount of footage. That fact is changing the way movies are made. When film isn't a pricey commodity, directors can afford to keep the camera's rolling to experiment with actors and happen across happy accidents.

Once a scene is filmed, traditional film must be processed, which costs more money. Several days later, the film returns and a director can see what they caught on film. DV, however, can be viewed directly after filming.

In addition, DV doesn't require processing to be edited. Traditional film must be converted to tape before editing, and then transferred back to film.

An Apple user could transfer their DV from a wide array of digital camcorders, via *Firewire*, to a 600 MHz iMac with 256 MB RAM (*$1,700*) where they can edit the images with Apple's free digital video editing software *iMovie 2*.

WORDS BY SCOTT HICKEY > IMAGES & STYLING BY JJ PRODUCTIONS

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Or, if you have a larger budget, you can go mobile with a mid-range *Titanium Powerbook* ($3,499) along with *Final Cut Pro 2* ($999), Apple's top-notch editing and special effects program and *After Effects 5.0* ($649), Adobe's versatile visual effects software.

DV distribution is cheaper than film too.

It currently costs hundreds of thousands of dollars to produce enough copies of a traditional film needed for national distribution.

Copies of DV movies are cheaper and do not deteriorate after repeated showings the way traditional film does. Theaters equipped with digital projectors are able to run movies from hard drives or encrypted satellite distribution.

Pretty As a Picture?

The economic advantages of DV are dramatic, but film buffs are more concerned with a movie's aesthetics than its finances. DV has a future only if projected video can replicate the warmth of projected film on the big screen.

It's not there yet, says **Daniel Minahan**, who wrote and directed "*Series 7*," a critically acclaimed satire on reality-based game shows. It was filmed using DV and released this spring.

Minahan still prefers projected film to projected video.

"My film looks great as projected video because it looks more like TV. I have no clue when venues will begin projecting video, but I'm not necessarily looking forward to it."

Currently, there are only 31 movie screens equipped for digital projection in the world. That means DV movies must be transferred to film if they're to be played in traditional theatres.

At this point, transferring DV to film can be a sketchy proposition, says Jennifer Jason Leigh who co-wrote and produced "*The Anniversary Party*," which was filmed with DV and released this spring.

"There tends to be a lot of artifacting, so you have to be careful and find someone who knows what they're doing or it can look horrible. We tried out several transfer houses before we finally found one we liked."

Transferring DV to film, Minihan says, is a '*technical morass*.' Color adjustment issues and editing a movie once it's been transferred from DV to film are both problems that frustrated him with "*Series 7*."

Minahan says no one has an answer for the all-important question – what are the aesthetic advantages DV offers filmmakers?

However, DV does have its share of supporters, chief among them **George Lucas**, who filmed *Star Wars: Episode II* entirely on DV. In interviews, Lucas says DV saves money, doesn't degrade after repeated showings and opens the door to new kinds of special effects.

"I love film, but it's a 19th-Century invention. The century of film has passed," he told the New York Times last fall.

Infrastructure

Even if everyone agreed today to leave film behind and only use DV, there is still one major problem - movie theatres aren't equipped to project digital video yet.

With only 31 digital screens in operation in the world, it is apparent theatre chains aren't rushing to install the expensive new technology.

Most are holding off until an industry standard is set for the way digital movies are compressed and saved, says Richard King, a spokesman for AMC Entertainment, which owns 2,790-screens, including nine digital screens.

"Theatres still remember having to buy three different kinds of digital sound systems because different movies required different systems. Everyone wants to avoid going down that road again."

AMC would like to see the theatre industry embrace the new technology soon – within the next three to five years. If it does take until 2006, King says theatres will be going digital at the same time the television industry will be broadcasting digitally as mandated by the Federal Communications Commission.

Closing Credits

If the digitization of the movie industry follows a similar path as the digitization of the music industry, it may take a few years for artists to embrace the new technology. After all, art has a long tradition of rejecting new tools as blasphemy only to warm up to them later.

The legacy of DV, and perhaps all digital technology, may be that it simplified the technical end of creativity, and put tools - once reserved for professionals - into the hands' of amateurs.

Moviemaking is one of the most expensive art forms, and DV is relaxing the financial constraints that have traditionally kept people from venting their creative steam behind a camera. Whether or not that's a good thing remains to be seen. Just because the Mark Borchardt's of the world are making movies, doesn't mean they're going to be making good movies.

But there are sure to be those unexpected flashes of digital brilliance coming out of nowhere – like the original DV sensation "*The Blair Witch Project*" – that will make it all worthwhile. ✠

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WORDS BY MACDIRECTORY STAFF
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WHAT DO THE UNIVERSE, MUSIC AND MACS HAVE IN COMMON? DESCRIBED ONCE BY DENNIS MILLER AS "A CROSS BETWEEN CARL SAGAN AND MADONNA": ASTROPHYSICIST, AUTHOR, AND MUSICIAN DR. FIORELLA TERENZI DEVELOPED TECHNIQUES TO CONVERT RADIO WAVES FROM GALAXIES INTO SOUND BY USING A MACINTOSH SYSTEM.

Her music explores astronomy as a metaphor for human relationships and humanity's place in the universe. Dr. Terenzi's best-selling CD-ROM "Invisible Universe" blends astronomy and music into a uniquely entertaining and enlightening voyage through the stars that has won the Sigcat Award for "Most Creative Application of Multimedia in Higher and Adult Education."

In this exclusive interview, MacDirectory spoke with Dr. Fiorella Terenzi.

MacDirectory: Explain your work to our readers.

D. Terenzi: "I am an astrophysicist who developed a new technique to represent celestial data not through images or visually but into audio - a sonification of celestial data instead of a visualization. I called it 'Acoustics Astronomy.' I am also an author with books published internationally and a recording artist with albums on Island, Mercury and Warner. At the present time, I am also devoting part of my time to being the Director of New Media and Astrophysics at the Miami Museum Of Science and Space Transit Planetarium. Basically, I am a scientist who is moved by an artistic sensibility; an artist who relies upon science and technology in order to express myself.

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MD: What made you get into this field?

D. Terenzi: "It began when I was a child in the countryside just outside of Milan, where my grandmother and I would go for walks during nighttime, and look at the stars. She believed that the stars have eyes that watch us. I remember feeling as if the stars were gazing back at me, feeling as if a stellar heart was beating with mine, and in those moments, all of the loneliness I felt as a child disappeared. I felt at peace, a oneness with the Universe I had never felt before. I often think of my first *extraterrestrial* gaze and how I was awestruck, feeling both like the center of the universe and like an invisible micro-dot, lost in incomprehensible space. At that time, I knew nothing of quasars and black holes, or even of radio telescopes.

"I only knew that the sky had suddenly opened up to me, and I would never again be the same. I began to have questions: Am I a part of all of this? Does it know me? Can it show me how to construct my own internal universe? Today, these questions are still the most fundamental questions astrophysics can ask."

MacDirectory: Explain the process of converting radio waves from galaxies into sound. How is the Macintosh used to assist this process?

Dr. Terenzi: "When we receive electromagnetic emissions from celestial objects we create graphs and maps. Man 'sees' and 'watches' science, thus 'observing' the universe; we have always demanded an image. But, not very long ago, in about 1933, faint radio noises were found coming from the center of our galaxy. This science grew up and was called *radio astronomy*. Today we detect cosmic radio waves from many unusual celestial objects such as pulsars, quasars and the "so called" *radio-galaxies*. Every celestial object emits radiation based upon its unique nature. If these signals are elaborated into sound rather than graphs, every star in the sonorous universe can be recognized based upon its special sound.

"As part of my doctoral research in Physics, working at the *University of California*, San Diego, *Center for Music Experiment*, and at the University of Milan, I developed a way to transform galactic radiation into sound, using a computer music system. The basic process is to shift the very high frequency vibrations down to the human hearing range, to create for the first time a *Sonorous Universe*.

"'Acoustic Astronomy' started by observing the close analogy between galactic radiation and musical notes -- both of which are decoded by intensity and frequency (*or wavelength*). The intensity represents how strong the signal is. A sound, for example grows louder with greater intensity, and softens with less intensity. Radiation waves striking Earth also occur in varying degrees of intensity. Frequency represents the cycles per second, or in simple terms, how many times the radiation goes back and forth in one second. This is measured in *Hertz*. One cycle-per-second equals *1 hertz*, 100 cycles equaling *100 hertz*, and so on.

"In music, our familiar A-note, that we tune all instruments to, vibrates at *440 hertz*. The human voice range is from *27 to 4,186 hertz*. The voices of the galaxy, however, are incredibly high. They range from one billion to one-thousand-billion *hertz*. To have galactic radiation fall into the human hearing range, a mathematical reduction of the high frequency waves is required.

"The first experimental "*subject*" was a galaxy invisible to our eyes that hides in the darkness, far away, in the direction of **Coma Berenices**, between **Virgo** and **Leo**, under the handle of the Big Dipper. Galaxies we cannot see rarely earn beautiful names, and this one is known simply as radio galaxy *UGC 6697*. After it had traveled 180 million light years, the radiation from *UGC 6697* was collected in huge radio and optical telescopes by staffs of researchers and astrophysicists. These radiation were turned into a radio photograph of the galaxy, forming an image. I decided to try to play them - to represent the same data in the acoustic domain.

"Natural radio waves from stars and galaxies are produced by the chaotic motion of high energy electrons: countless 'particle collisions and accelerations' not synchronized with each other.

"Every kind of celestial radiation can be represented as a stream of numbers. To convert the radiations' frequencies and intensities to audible form, I needed a special computer sound synthesis program called '*Cmusic*', which I used to interpret the signal in terms of sound.

"After a variety of processes, this signal can be sent to a digital-to-analog converter and played through conventional loudspeakers or recorded onto digital tape or CD, to bring you the sound of UGC 6697 from 180 million light years away.

"The Macintosh at that time was not involved in this process. I was mostly working on a *DEC VAX 11/780* in Unix, but I used a Mac to compose music with the sound I collected from this galaxy. I remember using Mac with Composer to created music score and play them via Performer to control and trigger my galactic samples in my samplers."

MD: As a scientist who is moved by an artistic sensibility, why do you use the Macintosh system? What other areas do you use your Macintosh?

Dr. Terenzi: "Macintosh unleashes my reason and imagination, therefore it is a perfect medium to express both arts and science. It allows the fantasy and inspiration to fuel exploration. My music is mostly composed on Mac using *Digital Performer* and *Protools*.

"My CD ROM 'Invisible Universe' was entirely created and produced on Mac. **Bob Stein** and *The Voyager Company* did a fantastic job in assembling and designing all the material in a interface that is friendly, clear, fun, enjoyable and invisibly high tech. Here at the *Space Transit Planetarium* at the Miami Museum of Science we are all Mac-based. I just got a brand new G4 and planning to do a lot of work with *Final Cut* and *Quick Time*. **Jack Horkheimer**, Executive Director of the *Space Transit Planetarium*, is also the Creator and the Host of the syndicated PBS series 'StarGazer,' (*www.jackstargazer.com*) and we are planning to do live streaming in the near future."

"My Mac PowerBook G3 is also the center of the lecture/performance I have currently on the road called "Heavenly Knowledge." From my G3, I run all the visuals and most of the audio for my presentation, from my CD-ROM's Guided Tour of the Universe, to fly-by's of galaxies and planets, slide shows, celestial maps, close up views of celestial objects, music tracks and drum tracks, music videos on DVD, and a demo on how I translated radio waves from space into sound.

MD: Explain the "Emotional Learning" concept.

Dr. Terenzi: "Most of my work is based on an emotional impact, because when learning finds an emotional home, it is remembered forever. I always keep in mind that in order to EDUCATE I need to ENLIGHTEN, ENTERTAIN and ENTHRALL. This is a concept I call the 4Es.

"I always use my creativity to individualize and customize the learning process. Since we all learn better if we can internalize -- or personally identify with -- the subject matter. The learning process needs to enrich us. In writing my book I moved away from the concept of learning with pain: where professors hand you formulae to commit to memory, and make the learning process an unfun experience. To me education is key for success in life. It is the foundation of our growth and understanding. Learning enriches and elevates human kind.

"There is also another 'E' which belongs among the four 'E's' -- and that would be EMPOWER.

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Education empowers us. It is the most powerful springboard for opening our minds and our hearts, and guiding us to a greater understanding and appreciation of our place and meaning in the universe."

MD: How has technology affected your work?

Dr. Terenzi: "I started to use technology and computers early on in my education, when I was a student in physics. I was on the internet in 1987 exchanging files and data with colleagues across the planet. My web site, *fiorella.com*, was registered on May 1995. I am naturally high tech. To me technology means progress. Technology means to be informed -- to have shaped my mind through teaching or training.

"We are living in an era where technology is bringing together people who once seemed to have very different points of view -- capitalists, artists, scientists, technologists, environmentalists, and many others. Through the web and the internet, our breadth of experience and knowledge, our base of understanding how we view the world is expanding. Thanks to technology we are expanding our mind, we are progressing toward a more enlightened community. I strongly believe that the high-tech tools of today and those of tomorrow will re-refocus our society's values. Through technology we are re-discovering what makes being human so special; we are re-discovering the quest for knowledge: a passion for exploration, a spiritual awareness and an emotional connection to other human beings.

"We are now only beginning to see how technology can inspire the free flow of information and ideas between the people of the world. I'd like to think that a young person growing up in Bosnia, who dreams of a career in space, will have the same opportunity to explore it online as a young person in Boston; that a physics professor in Belize will be able to download the same scientific abstract as a professor in Beijing. We will come to understand that technology is not a means to an end, but a journey that can take us to greater and greater places."

MD: Why do you find wisdom in the stars?

Dr. Terenzi: "Since I was a child I have always looked to the stars for wisdom. Why? Because the principles that govern the Universe, govern both the infinite and the infinitesimal. These principles have bearing on everything in the universe -- often indirectly, sometimes directly, and yet other times in symbolic, allegorical ways. Principles are principles: they do not discriminate between the enormous and the tiny, the primitive and the new. These principles contain extraordinary wisdom about how to live a successful and harmonious life.

"I am not talking about astrology or any other kind of magical wisdom. No. I am talking about the immutable laws of *Astrophysics* and *Physics*. Actually, the notion that the sky -- especially, the night sky -- can teach us a thing or two about how to live is a very old idea. The ancient *Greeks* deciphered principles of life and lessons for living from the limited amount of sky they could perceive. In those days, this practice was a dominant part of philosophy known as cosmology. Today, thanks to large array of radio telescopes and powerful computers, our perception of the universe has expanded exponentially -- yet our ability to decipher principles for living from these perceptions seems to have contracted at the same rate.

"When science separated from philosophy to become a purely empirical enterprise, we started to examine objects in the night sky to measured them; we charted their movements and predicted their future behavior. Astronomy got totally separate from purely human concerns. As I write in my book 'Heavenly Knowledge' (Avon Books):

'From then on, studying the stars had to be done dispassionately. After all, this was science -- we dare not let our feelings and yearnings and personal quandaries become entangled in examining these celestial phenomena. We must be objective, the new scientists told us. Our job is to master the universe, not commune with it.'

"But all the time I sat next to a state-of-the-art telescope I got more and more convinced that we can do both -- objectively learn about the universe and commune with it. Perhaps it will take a woman scientist to show us how to combine these opposite approaches of gazing at the stars."

MD: In an era of emails and e-commerce, it appears that less and less people are concerned about learning about our galactic wonders. How do you fell about this?

Dr. Terenzi: "Actually, considering how many hits the JPL and NASA site receive all the time, there is a new mission to space, I am starting to suspect that the internet will empower more and more people to look up. I feel that all over the world there is a very fast growing interest in space, probably because space is starting to generate a positive cash flow thanks to the early steps we are taking toward a privatization and commercialization of space.

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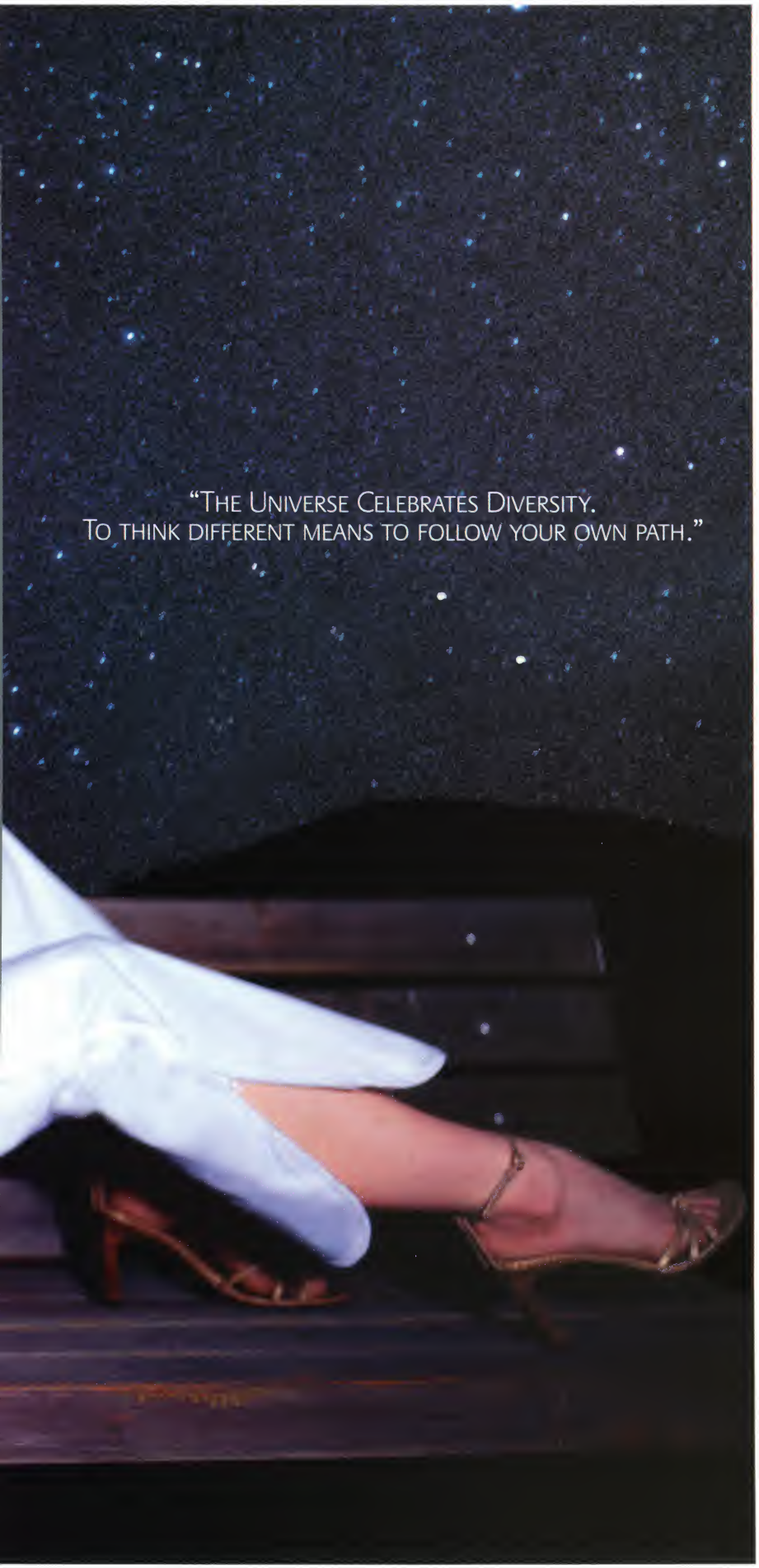


"However your question touches base on a very key issue about science in general. If you could allow me to rephrase your question, I would say: '*What's Research without Scientists and Physicists?*' I am afraid that we have fewer and fewer brains available to do Research due to the continually smaller and smaller number of students enrolling in physics classes. And of top physicists and scientists available to do fundamental research and applied science, more and more prefer to work on software due to the high financial reward. If these conditions continue, in 10 years or probably sooner, the lack of scientists doing R&D will lead us to a technological bankruptcy. This will lead us to another question 'What kind of Economy we will have Without Research?'"

MD: What do you think about Apple's '*Think Different*' campaign?

Dr. Terenzi: "There is a very well know Principle in the Universe which I will simplify for you in few words. This principle says: 'The Universe Celebrates Diversity.' To think different means to follow your own path. And to always follow a different trajectory is just one of the life lessons I have learned by studying the stars."

MD: And with this unique trajectory in your life, how do you feel about the universe?

Dr. Terenzi: "I feel that we are facing a Universe filled with emotional wonders. We are surrounded by a Universe that is trying to explain who we are. The Universe is a powerful tool for human growth and development. The sky challenges us to see and discover new possibilities.

"Looking up lifts our spirits, raises our consciousness and deepens our understanding of ourselves and each other. The sky empower us to reach further. There is a quote from **Nelson Mandela**, from his inaugural address as President of South Africa, in 1994, which says: '*Our deepest fear is not that we are inadequate. Our deepest fear is that we are powerful beyond measure. It is our light, not our darkness, that most frightens us. We ask ourselves Who am I to be brilliant, gorgeous, talented, fabulous?*'

"Actually, who are you not to be? You are child of God. Your playing small doesn't serve the universe. There's nothing enlightened about shrinking so that other people wont feel insecure around you. We are all meant to shine, as children do. We were born to make manifest of the glory of God that is within us. It's not just in some of us; it's in everyone. And as we let our own light shine, we unconsciously give other people permission to do the same. As we're liberated from our fear, our presence automatically liberates others." ✠

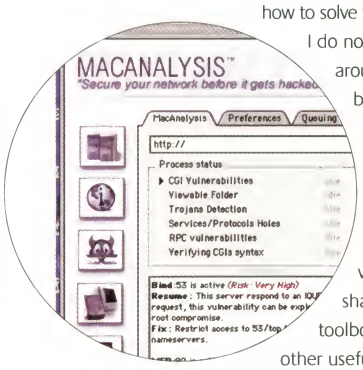
EQUIPMENT FROM THE MAC GUYS, COSTA MESA, CA 949.645.4022

review 1 > Top 10 Security Tools For Your Mac

BY NICHOLAS RABA > NICK@SECUREMAC.COM

MANY PROGRAMS CALLED SECURITY TOOLS ARE ACTUALLY MADE BY HACKERS AND ARE CLASSIFIED AS HACKER TOOLS. SECUREMAC TESTED AND RATED THE VALIDITY OF SEVERAL PROGRAMS – NOT ALL WERE MADE BY HACKERS. THE GREAT THING ABOUT THESE APPLICATIONS IS THAT MOST ARE FREE OR ARE SHAREWARE.

1 > MacAnalysis is an application intended to avoid all intrusion and damages caused by hackers. The method MacAnalysis uses is simple: hacking your server, MacAnalysis will inform you how this was done and how to solve the problem. In using the term *"hack,"* I do not mean destroy. MacAnalysis pokes around to see what is open, and if it can be attacked to gain access or cause disruptions of service. Updating a vulnerable database can be done quickly. The program's creator – *Lagoon Software* - says the company adds more than 100 new vulnerabilities each month. This shareware program is a tool for anyone's toolbox. It performs the tests and has many other useful features - Nslookup, System Information, ping (spoofable), finger and more.



Type: Shareware > Cost: Free > Creator: Lagoon-Software
Download: www.macanalysis.com

2 > Caem is an email application that allows you to send emails anonymously. Occasionally, you find yourself sending an email with sensitive information you would not want to find your name attached to years later. Caem lets you specify an email address and the name you want to identify yourself as. It will also let you specify smtp servers. The application lets you save information, mail servers and will let you specify carbon copy and blind carbon copy addresses. Caem was featured in the Top 10 downloads for *VersionTracker.*
Type: Freeware > Cost: Free > Creator: Logik
Download: logik.accesscard.org

3 > Grouchy Smurf allows the MacOS to send spoofed ICMP packets. You may often find your computer loses bandwidth suddenly. This may be due to someone sending a Denial of Service *(DoS)* attack. This application allows you to test your own computers/networks to see if they are vulnerable. You can then fix the problem with patches and upgrades to the operating system.
Type: Freeware > Cost: Free > Creator: WeeDo, d_gerbil
Download: freaky.staticusers.net

4 > Ferret recovers passwords with a simple click. Many times you may lose an email password, hotline bookmark passwords or PPP passwords. Ferret recovers passwords to many pre-specified programs. This program should be kept on a disk or password protected. If this program is installed on your computer and a visitor opens it, they would have access to all your passwords.
Type: Freeware > Cost: Free > Creator: jindel
Download: freaky.staticusers.net

5 > MacSSH allows you to make an ordinary telnet connection secure by using the SSH protocol. Everything you type over a telnet (telnet is a method of connecting to a remote system, usually unix) connection is sent in plain text. Any hacker sniffing the network can see your passwords or sensitive information. Using the MacSSH client gives you as much privacy as using SSH2 standards. If you use this program and it says SSH is not enabled on remote host, contact the system administrator and ask for SSH2 to be installed.
Type: Freeware: Cost Free > Creator: J.-P. Stierlin > Download: www.macssh.com

6 > Apple File Security can be found in your system folder in the Security folder when running MacOS 9 or higher. This file encrypts your files so other people cannot open them, and compresses your files to take up less disk space. When you try to open the file, you are prompted for a password. Use Apple File Security with caution. There have been no known hacks to

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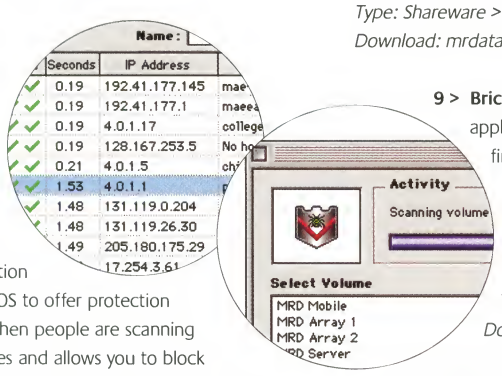
break the encryption.
Type: System Software > Creator: Apple Computer, Inc.
www.apple.com



7 > IPNetSentry is a firewall program that secures your Macintosh. The creators of the program pride themselves in offering this Firewall application as shareware. IPNetSentry is a faceless background application that coincides with the MacOS to offer protection from intruders. It tells you when people are scanning your computer for open holes and allows you to block them. It also allows you to specify which ports can or can't be accessed. The program automatically blocks computers that do port scans looking for open holes on your computer .
Type: Shareware > Cost: $35 > Creator: Sustainable Softworks >
Download: www.sustworks.com

8 > vScan easily detects and removes viruses. Monthly virus definitions are available for download, and vScan will check your archives for viruses. There is no need to go spend a lot of money on a virus protection suite when you don't need it. Use something simple, fast, effective and cheap. If you find the application useful, then you pay for it. That's the way shareware works.
Type: Shareware > Cost: $25 > Creator: vScan
Download: mrdataworks.com

9 > BrickHouse is a Graphic User Interface (GUI) application for MacOS X that gives you control of the firewall settings. Configuring your firewall on MacOS X can take time. BrickHouse gives you the ability to click and choose what you want on or off and what to protect. MacOS X is out, and the next step is to secure it.
Type: Freeware > Cost: Free > Creator: Brian Hill
Download: www.securemac.com/brickhouse.cfm

10 > Yaba is a security vulnerability scanner for MacOS X. The application scans for more than 256 different vulnerabilities and can be updated by database. The program is free and is sure to make MacOS X a choice for security auditing. Scan your network for open holes using Yaba so you are sure to find all the holes before the hackers do. MacOS X compatible only!

Type: Freeware > Cost: Free > Creator: Satya of Team2600
Download: www.team2600.com

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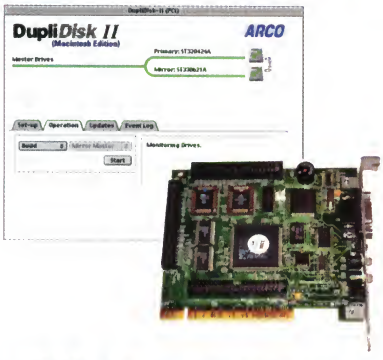

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review 2 > Disk Warrior 2.1

BY RIC GETTER

OVER THE YEARS, DISK FIRST AID HAS BECOME MUCH MORE POTENT WHILE NORTONS AND TECHTOOL REMAIN THE VIRTUAL SWISS ARMY KNIVES OF DISK REPAIR. SO, WHY WOULD ANYONE WANT TO GO OUT AND SPEND ANOTHER $70 ON A TOOL THAT ONLY REPAIRS DIRECTORIES?

Overview

The real question is: if you needed surgery, would you prefer that your doctor used a Swiss Army knife or a scalpel? Even though Nortons and TechTool have a more prominent place on retailers shelves, Disk Warrior has become the first choice of most knowledgeable Mac users. In fact, it handily beat out the other two competitors in a MacFixit poll last year.

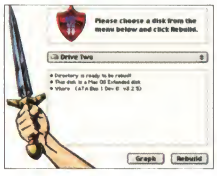
Disk Warrior does just one thing: it rebuilds file directories. However, it does this one thing extraordinarily well. And this simple-sounding operation will cure most disk problems from the miniscule to the catastrophic. The key point is the utility rebuilds rather than repairs. The disk directory is an extremely complex, database-like structure that keeps track of where everything is *(and isn't)* on your disk drive. When you want to open a file or save one, the disk directory is the roadmap your Mac follows to either find the file or locate some open space. It is a complex operation involving a monumental amount of data and has to be done very quickly. In spite of all of this, your directory is actually quite reliable. It is fault-tolerant and able to work around a variety of problems—up to a point.

While the other two utilities present you with a plethora of diagnostic and repair options, all you need to do with Disk Warrior is to tell it go. A few minutes later, it will present you with the option to preview a version of your disk with the rebuilt directory. It has scanned all the data on your drive and created its own new and perfectly optimized directory. You can take advantage of the preview to compare file counts and sizes with your original disk *(which also appears on your Desktop)*, open files and run programs. If you are pleased with the results, Disk Warrior will go ahead and install the fresh and highly optimized directory. A second tab in the very simple window will let you set up Disk Warrior to monitor your directory structure and alert you to any problems as they happen.

Even though many users *(including this reviewer)* originally turned to Disk Warrior as a last resort for disaster recovery, it is actually your best first line of defense. According to Alsoft, there are cases where other utilities' attempts to patch a faulty directory can result in the loss of otherwise recoverable data. In the rare event that Disk Warrior is unsuccessful, you have the option of leaving your corrupted drive untouched, giving a professional data recovery house a much better chance for a successful salvage operation. Also, with **Nortons** and **TechTool**, file-recovery and directory-repair are separate operations. Reconstructing a directory with Disk Warrior, by definition, brings back your files.

The current version of Disk Warrior is shipped on a CD that will boot any Mac with a 68020 capable of running **OS 7.1** or later. Its proprietary multi-boot CD will determine and boot the most appropriate version of the OS, from **7.1** to **OS 9.1** and will repair directories on disks with Standard, as well as **HFS-Plus** and **OS X** Extended formats.

Improvements



Disk Warrior 2.1 boasts some modest improvements over the previous 1.x versions. It now gives you the option of installing the new **Disk Shield Extension** that will monitor your directory structure and alert you when it believes it has been damaged. The CD also includes a copy of **Alsofts' Plus Optimizer**, a sturdy and secure disk optimizer for **HFS-Extended** formatted disks. Booting under 9.1, it will also defragment **OS X** volumes. Even though most power-users like to keep a full stable of up-to-date disk utilities on hand, Apple's **Disk First Aid** and **Alsoft's Disk Warrior/Plus Optimizer** package will provide all the capabilities most users will ever need.

One very nice feature of the CD is a hypertext version of the complete manual that is integrated into the program's help system. The unfortunate trend towards all-electronic documentation has a number of drawbacks when it comes to disk recovery utilities. If your hard drive is totally hosed, chances are the Acrobat version of the manual on the CD-ROM is not going to be very useful.

With an MSRP of $69.95 for the CD, it's a great value even if it is just used as a tool for regular disk maintenance. But when you power-up your trusted, information appliance and are greeted by the dreaded Flashing Question Mark, your Disk Warrior CD may become your most prized possession.

Price: 69.95
From: Alsoft
www.alsoft.com

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review 3 > Virus Barrier 1.5.3

BY SCOTT DEWBRE

VIRUS PROTECTION IS ONE AREA WHICH MAC USERS ARE QUICK TO BRING UP WHEN ARGUING THE AGE-OLD MAC VS. PC ARGUMENT. THE SIMPLE FACT IS MOST PC CRIPPLING COMPUTER VIRUSES OUT THERE DON'T EVEN EFFECT THE MAC. TO MAC USERS, "I LOVE YOU" IS A NICE SENTIMENT AND ANNA KOURNIKOVA IS A TENNIS STAR. MAC USERS TEND TO BE CAVALIER ABOUT VIRUS PROTECTION. THIS SHORTSIGHTEDNESS CAN COST DEARLY BECAUSE MACS ARE NOT IMMUNE TO VIRUSES.

Fortunately, protection is available for Macs through applications like VirusBarrier. **Intego** just updated the anti-virus application. Virus Barrier has a cool interface and lots of nifty features, but lacks a few features that would make it a must-have utility.

New Features

Users already acquainted with the application will notice a few new features in version 1.5.3, including: Scanning compressed files that **Stuffit Expander** recognizes; a new *"Turbo"* scan speeds up disk scanning by five to 40 times by skipping previously scanned files that haven't been resaved since the previous scan; self-protection ensures VirusBarrier itself doesn't become infected and a RAM scan that runs immediately after VirusBarrier detects a system virus to look for any problems in memory.

Drawbacks

VirusBarrier is a control panel designed to run constantly in the background. The program's non-intrusiveness is good, but has a down side. It raises the question in the user's mind, *"Did the alarm bell not ring because everything is okay, or because the bell is broken?"* For instance, when you download a compressed application from the Internet, it would be nice to get a confirmation that it's virus-free before you decompress and install the new application. Without a confirmation signal, all you can do is guess that the file is clean unless you take the time to open the VirusBarrier control panel and run a manual scan. Also, there is no *"Close"* command for the VirusBarrier control panel, so the only option for closing it is to use the *"Quit"* command, which can make you wonder if you just shut off your virus protection.

Running manual scans turned up a couple of problems that, while minor, might keep some folks from being happy with VirusBarrier. First, it errored out twice while trying to scan zip files that originated on a PC. I have to use PC-compressed files on a daily basis, and I'd like to know if they're infected or not before decompressing them.

A second problem is the way VirusBarrier shows the desktop. All you see are devices, no files. You can easily get around this by dragging the file icon onto the VirusBarrier console to scan it, or by holding down the Control key and clicking on the file to start the scan.

Positives

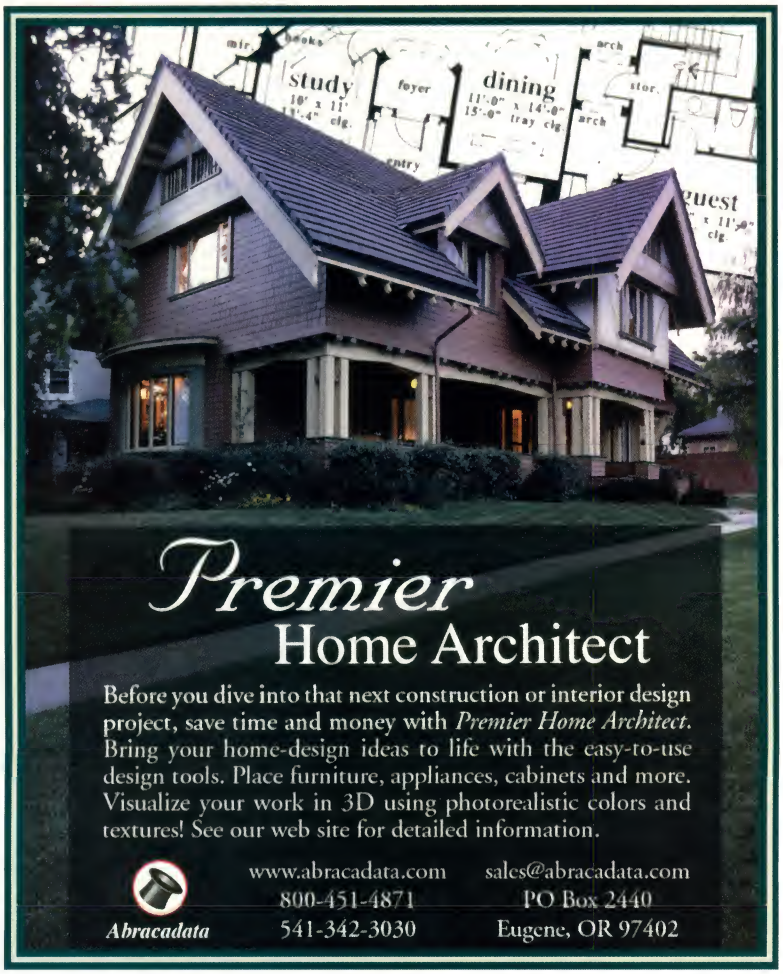
On the plus side, VirusBarrier has a notification option I wish more software makers would clue into. The option sends an email message automatically upon detecting a virus problem. Thinking back on all the times I've undergone the third degree from some worked-up network administrator tracking down a virus I would have paid real money if I could have just handed over a piece of paper with all the important facts on it. Better still, with the email option you can have the email go straight to your network administrator, instantly notifying the appropriate authorities.

Another important plus is VirusBarrier's automatic updating capability. Through a related application called **NetUpdate**, VirusBarrier polls the Intego Web site to download new virus definitions. This keeps your virus protection at the top of it's game.

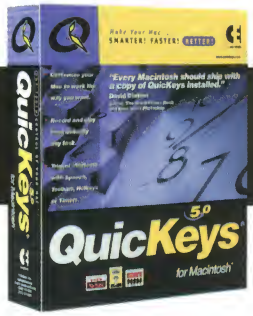
Requirements

MacOS: System 8.1 or later > Application: 16 MB > *Mac with PowerPC and OpenTransport* Price: $49.95 > From: Intego *www.intego.com*

MacDirectory ★★★1/2



control freak?



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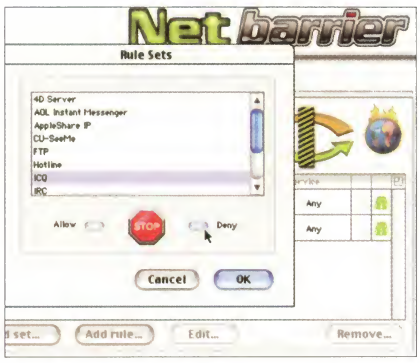
review 4 > Net Barrier 2.0.2

BY SCOTT DEWBRE

WOULD YOU SPEND $60 (ACTUALLY, IT SELLS FOR $59.95) ON A PERSONAL FIREWALL FOR YOUR MAC? INTEGO JUST INTRODUCED VERSION 2.0.2 OF ITS PERSONAL FIREWALL APPLICATION, NETBARRIER. LET ME SAY UP FRONT THAT THIS IS THE BEST $59.95 THAT YOU'RE EVER GOING TO SPEND, PARTICULARLY IF YOU HAVE DSL OR A CABLE MODEM.

NetBarrier gives you several preset firewall options to choose from, or you can choose the custom option and build your firewall from scratch, deciding exactly who gets through and who doesn't. The level of detail in the dropdown menus makes this a lot easier than you'd imagine.

Working hand-in-hand with the firewall settings is a set of anti-vandal protections, which are highly customizable. With the click of a button, you're protected against the hacker's favorite tools of destruction: denial-of-service attacks, ping bombing, unmonitored ports and intrusion attempts in which someone else tries to log onto your account by sending password after password until they get lucky. There is also a stealth mode, which prevents your computer from responding to pings. This is very useful for protecting Macs with an *"always on"* Internet connection, such as with cable modems or DSL. I can speak from personal experience on this one. My wife and I got a cable modem about a month ago as part of a home network. From day one, we monitored the incoming network activity and noticed that we were being pinged by servers and IP addresses we'd never heard of and, more importantly, had nothing to do with the Web sites we were browsing at the time. It doesn't take long to convince you people are out there looking around all the time.



New Features

For those already acquainted with NetBarrier, security features new to version 2.0.2 include the control of unwanted Internet cookies, banner ads and spam, the ability to filter personal information sent when connected to a web site, updates to the program's firewall settings, gauges to monitor data traffic by protocol or application and log exporting. The data traffic gauges are informative and cover a wide variety of data protocols.

Other new NetBarrier features include: A new control strip module, which allows quick access to most NetBarrier settings. NetBarrier Blocks cookies and counts the number of them received.

NetBarrier allows the user to erase cookies received by **Internet Explorer, Netscape Communicator,** and **iCab.** NetBarrier also blocks banner ads and information about you and your computer often requested by Web sites, like type of computer, type of browser, and the last Web page you visited. It bears mentioning that some features of NetBarrier might cause heartburn with your ISP or make it difficult to make purchases online. As NetBarrier itself warns you, TCP sequence scrambling and stealth mode may not work well depending upon your ISP's server setup. Preventing your Mac from telling the name of the last web site visited may cause an error when using an online shopping cart. Reason is, the CGI script often used for these shopping carts does a *"referring page"* request to make sure it is a valid purchase request. This is part of the shopping cart's internal security measures, and if it cannot verify the referring page, it might cancel the transaction outright. So long as you remember to uncheck *"last Web site visited"* in the Surf Filters options before attempting to make an online purchase, this shouldn't cause any major problems.

Alert Options

The set of alert options for NetBarrier is outstanding. Most notable among them is the ability to send an email to anyone you specify once a possible network intrusion or other problem is detected. This could make network administrators very happy all by itself. Plus, you can automatically block future information requests from an offending site or address permanently or a shorter interval with the click of a button. One final mention should be made of the banner-blocking feature.

The URL blocking list is already quite extensive, and it is easy for you to add offending URLs to the list as you find them. Away with you, banners! I have no time for your pandering, your sad attempts to divert my attention and sell me things! Begone I say!

Summary

Again, we're left with the big question is it worth the money? If you hadn't already figured out my opinion by now, let me spell it out for you: It is absolutely, positively, 100 percent worth it. This is hands-down an application that you'll be glad you own for the peace of mind it brings and for the way it helps you cut through the dreck you're bombarded with through your email and your web browser on a daily basis. NetBarrier 2.0.2 for **Mac OS 9.1** is available now, but an **OS X** version won't be out until later this year.

System Requirements

MacOS: System 8.1 or later > Application: 16 MB > Disk Space: 8 MB free disk space > *Mac with PowerPC and OpenTransport*

Price: $49.95 > Upgrade: $29.95 > from version 1.x to 2.03 > From: Intego *www.intego.com*

MacDirectory ★★★★★

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"Apple Protests Set for Expo Paris."
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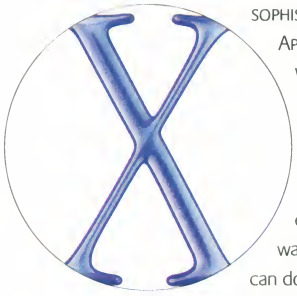
review 5 > Mac OS X

BY MICHAEL CONNERS

MAC OS X (CALLED OS TEN) IS SAID BY APPLE TO BE, 3THE WORLD'S MOST ADVANCED OPERATING SYSTEM.2 I CAN'T ARGUE THAT IT IS LIKELY THE MOST UNIQUELY AND QUITE POSSIBLY THE MOST SOPHISTICATED. MACINTOSH OS X SELLS FOR $129. APPLE1S NEW OS SUCCEEDS ON MANY LEVELS. SO WHAT DOES OS X BRING TO APPLE?



The Beauty and the Beast

Apple has an operating system that is new and complex, but the beauty is that it is elegant without the details. The user who wants to know more about the underpinnings can do so if they desire. What makes OS X different is that it doesn't require it. I have been using **Microsoft Windows 2000** professional for a while now and find the manuals and details to be overwhelming. Apple can take this OS well into the future and beyond. With its **Unix core**, developers should flock to this OS because of its extremely flexible and very versatile system. One of Apple's problems with developing this OS was to create a system that will keep their faithful nearby and allow them to expand their installed base.

New Capabilities

With any new OS, critics will strip it out for what it is not. Apple's new OS is no different. This new OS brings to Apple new life and vigor, something to build on. So what happens with OS X from this day on? Apple can now expand its list of developers that were once on the sidelines. OS X brings some new functions that only us Mac users dreamed of. We now have memory protection. This means that when a stray program runs into problems and crashes, other programs should have a better chance of survival. No more stray crashes that force you to restart your computer. When a program does crash, it simply disappears.

OS X also brings a new level of multiprocessing capabilities. Apple has long been having problems keeping up in the processor wars. Now as in the past, Apple can have multiple processor machines that actually have an operating system that knows how to have more than one running. A user can take advantage of this by adding more memory and buying systems eventually that has multiple processors. This doesn't necessarily mean that Apple will develop systems that have multiple processors, but it means they can and have a modern operating system that can handle it. In the past, a program would need been written to handle more than one processor. From now on, a program written for OS X will have multiple processing powers.

Compatibility

OS X is modern, elegant and most of all compatible. It works with existing software using the Classic version of OS 9.1 and brings a new level of sophistication. Maybe Apple has a way to go to bring all its components to its latest release of the new operating system, but knowing Apple and the developer base, Apple will do just fine in time. At $129, it brings a little bit of the future to today's new Macintosh systems. I myself will wait to see what other programs move to the new OS. As those appear, I too will be moving to OS X. As these programs are written for OS X, things will change.

System Requirements

Computer: iMac, iBook, Power Macintosh G3, Power Mac G4, Power Mac G4 Cube, PowerBook G3 or PowerBook G4 computer *Mac OS X does not support the original PowerBook G3 or upgraded PowerPC* Ram: 128MB Ram

Price: $129.00 > From:
Apple Computer, Inc.
www.apple.com

MacDirectory
★★★★

XTensions
Plugins
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Job Tracking
Print Tracking
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Flat Screen Displays

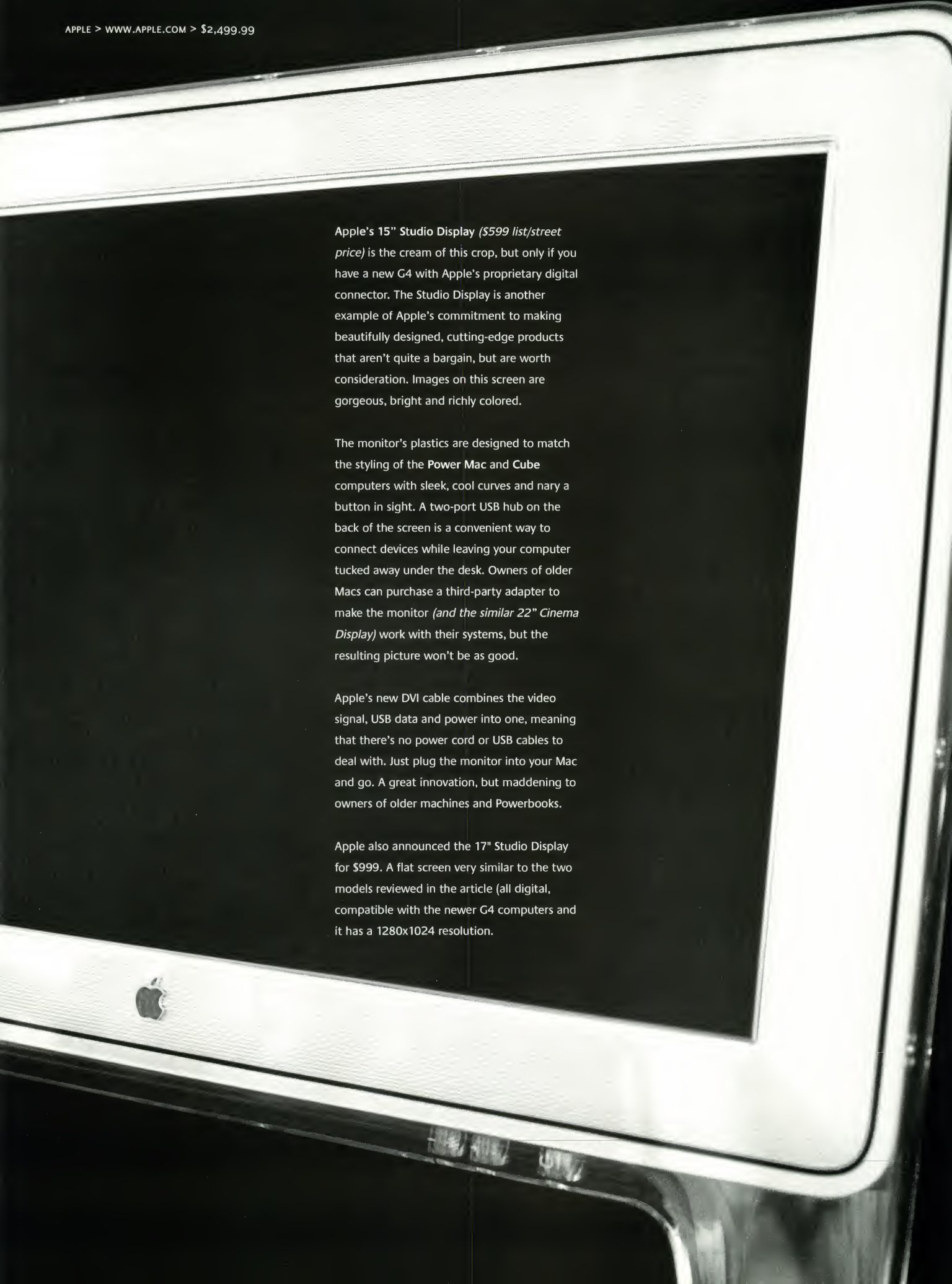
WORDS BY NOAH KRAVITZ > IMAGES BY ANTHONY SAINT JAMES

An old adage says you can never be too thin, beautiful or rich. But that doesn't exactly hold true when it comes to technology.

With the introduction of the 1" thick **Powerbook G4 Titanium** and the 1.35" thick **iBook 2001**, Apple has again fueled the fires of our geeky desires for faster, thinner, sexier technology. Advances in **LCD** *(Liquid Crystal Display)* and technology and methods of production have pushed the price of flat screen monitors toward affordability.

15-INCH DISPLAYS

15-inch monitors are almost too hard to work with in today's world of multiple applications, e-mail and Web browsing. At this size, 12-point text looks tiny and my desktop feels cluttered. If you can live with 15 viewable inches of screen, a flat panel display can be had for a song. **Viewsonic** and **Planar** both recently introduced models that sell for around $450 – neither are reviewed here.

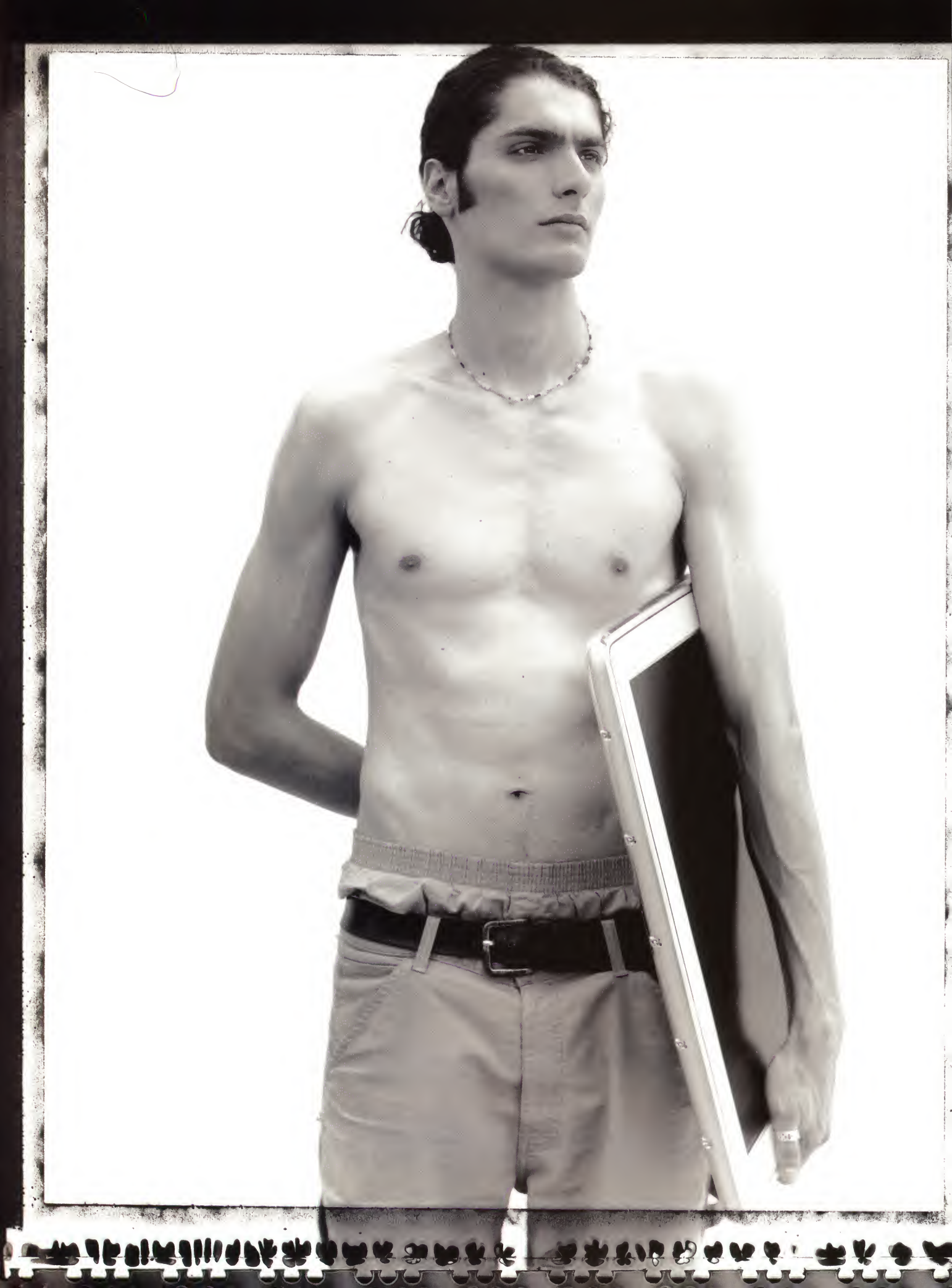


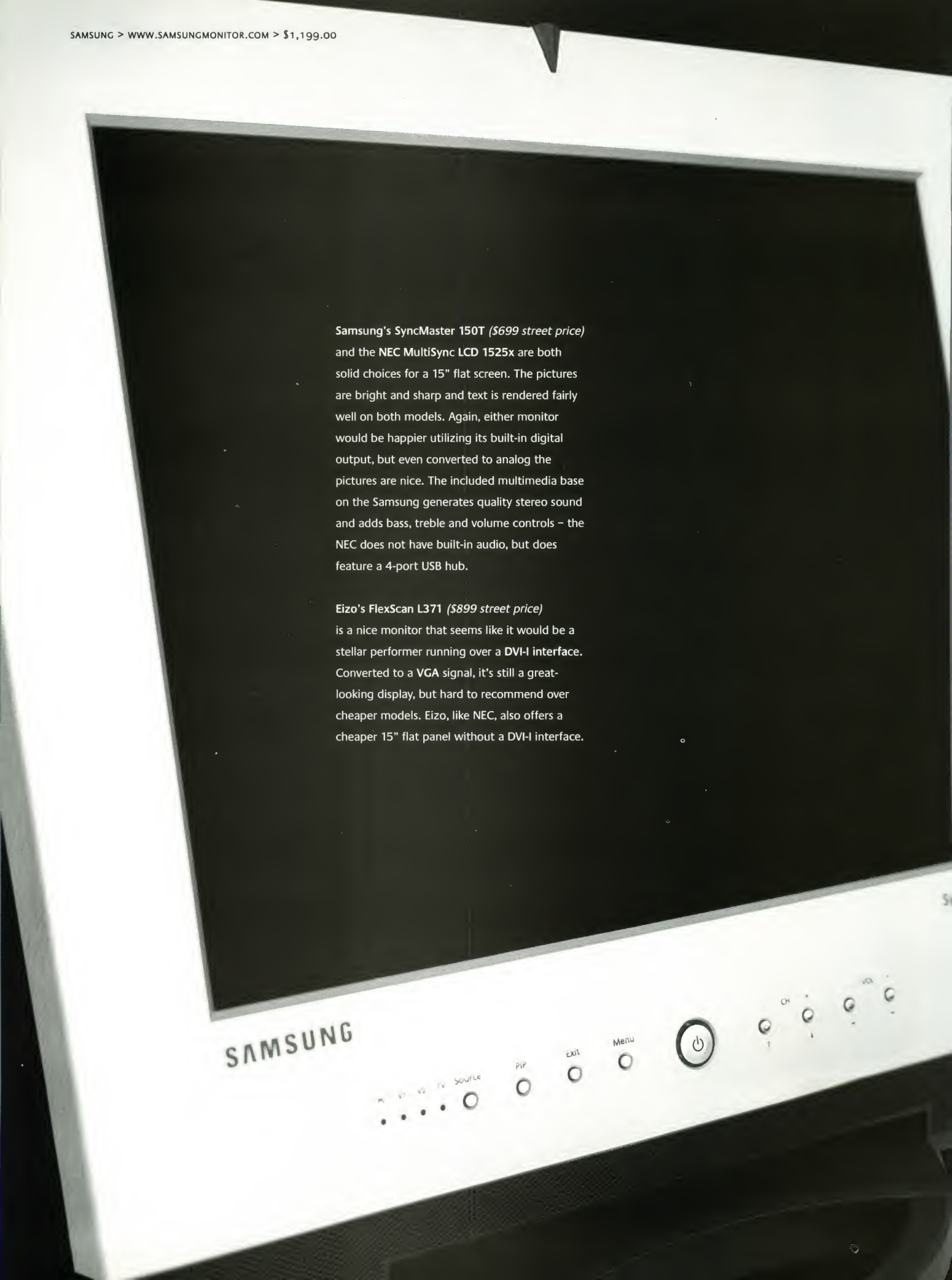
Apple's 15" Studio Display *($599 list/street price)* is the cream of this crop, but only if you have a new G4 with Apple's proprietary digital connector. The Studio Display is another example of Apple's commitment to making beautifully designed, cutting-edge products that aren't quite a bargain, but are worth consideration. Images on this screen are gorgeous, bright and richly colored.

The monitor's plastics are designed to match the styling of the **Power Mac** and **Cube** computers with sleek, cool curves and nary a button in sight. A two-port USB hub on the back of the screen is a convenient way to connect devices while leaving your computer tucked away under the desk. Owners of older Macs can purchase a third-party adapter to make the monitor *(and the similar 22" Cinema Display)* work with their systems, but the resulting picture won't be as good.

Apple's new DVI cable combines the video signal, USB data and power into one, meaning that there's no power cord or USB cables to deal with. Just plug the monitor into your Mac and go. A great innovation, but maddening to owners of older machines and Powerbooks.

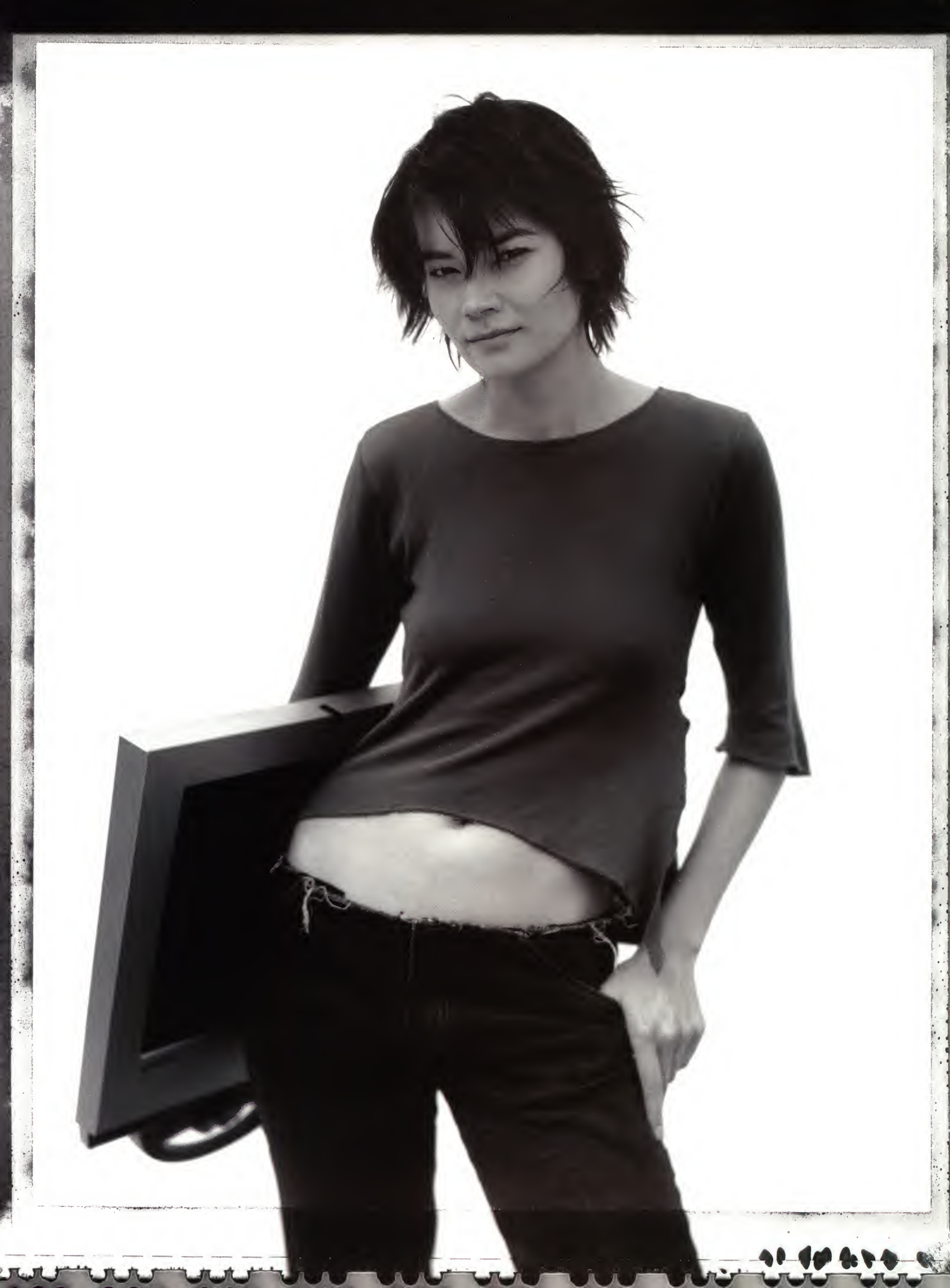
Apple also announced the 17" Studio Display for $999. A flat screen very similar to the two models reviewed in the article (all digital, compatible with the newer G4 computers and it has a 1280x1024 resolution.





Samsung's SyncMaster 150T *($699 street price)* and the **NEC MultiSync LCD 1525x** are both solid choices for a 15" flat screen. The pictures are bright and sharp and text is rendered fairly well on both models. Again, either monitor would be happier utilizing its built-in digital output, but even converted to analog the pictures are nice. The included multimedia base on the Samsung generates quality stereo sound and adds bass, treble and volume controls – the NEC does not have built-in audio, but does feature a 4-port USB hub.

Eizo's FlexScan L371 *($899 street price)* is a nice monitor that seems like it would be a stellar performer running over a **DVI-I interface.** Converted to a **VGA** signal, it's still a great-looking display, but hard to recommend over cheaper models. Eizo, like NEC, also offers a cheaper 15" flat panel without a DVI-I interface.



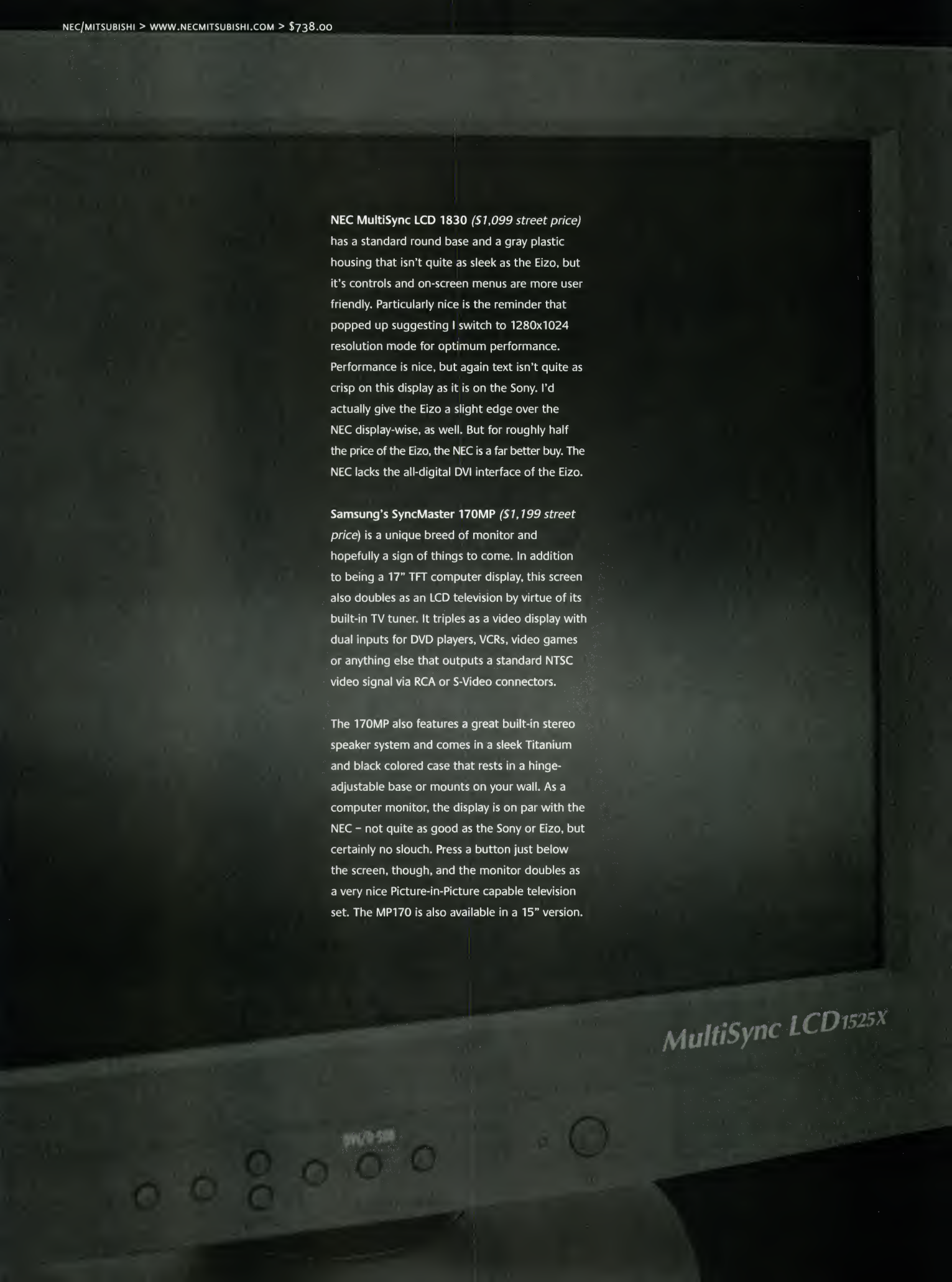
17/18.1-INCH DISPLAYS

Rumor has it that Apple will soon discontinue its 17" CRT *(Cathode Ray Tube)* monitor in favor of a flat screen model. Until they do, there is a plethora of quality options from other manufacturers to choose from in this practical class of LCD screens.

The 18.1" Sony SDM-M81 *($1,349 street price)* produces a beautiful, crisp image at a native resolution of 1280x1024 that doesn't suffer from any jagged text or color contrast problems. The screen is housed in a sleek, elegant gray *(also available in black)* plastic casing featuring a nicely adjustable, dual-hinge base and a vertical row of control buttons along the right side of the screen. Stereo speakers are incorporated into the casing, but they sound tinny.

The Eizo FlexScan L675 *($2,100 street price)* runs a close second to the Sony in terms of performance, but carries a steep price tag. Also offering 18.1" of screen, the Eizo's image is crisp and bright. Built-in smoothing controls add to the numerous image-tweaking options controlled by a row of buttons along the bottom of the casing. While certainly great to work with, text on the FlexScan isn't as nicely rendered as on the Sony. The Eizo's unique, two-pronged base has the smallest footprint of the bunch. A nice feature is this monitor's ability to switch from landscape to portrait display mode by rotating the screen on its base. This monitor does not have built-in speakers.

SONY



NEC MultiSync LCD 1830 *($1,099 street price)* has a standard round base and a gray plastic housing that isn't quite as sleek as the Eizo, but it's controls and on-screen menus are more user friendly. Particularly nice is the reminder that popped up suggesting I switch to 1280x1024 resolution mode for optimum performance. Performance is nice, but again text isn't quite as crisp on this display as it is on the Sony. I'd actually give the Eizo a slight edge over the NEC display-wise, as well. But for roughly half the price of the Eizo, the NEC is a far better buy. The NEC lacks the all-digital DVI interface of the Eizo.

Samsung's SyncMaster 170MP *($1,199 street price*) is a unique breed of monitor and hopefully a sign of things to come. In addition to being a 17" TFT computer display, this screen also doubles as an LCD television by virtue of its built-in TV tuner. It triples as a video display with dual inputs for DVD players, VCRs, video games or anything else that outputs a standard NTSC video signal via RCA or S-Video connectors.

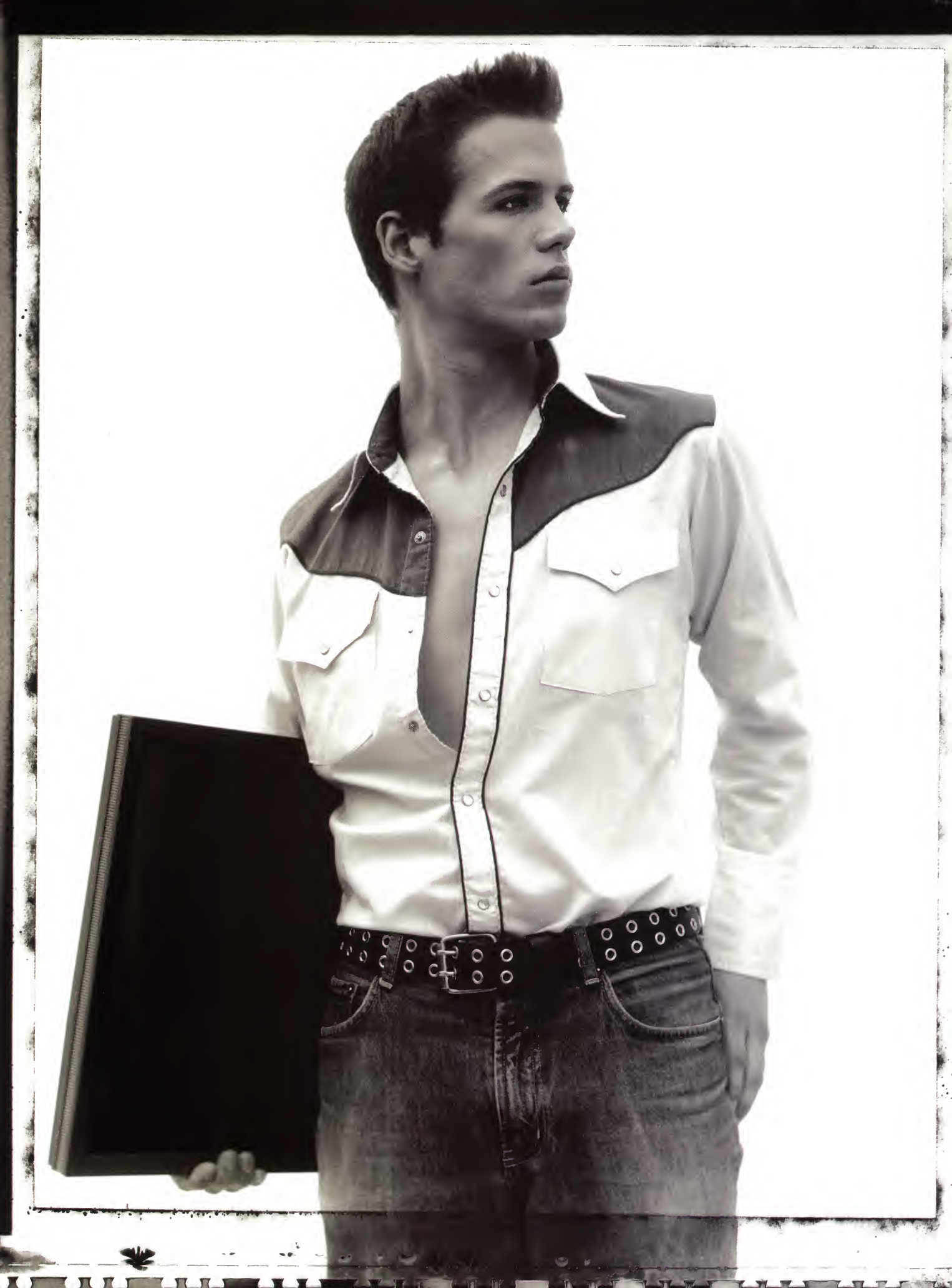
The 170MP also features a great built-in stereo speaker system and comes in a sleek Titanium and black colored case that rests in a hinge-adjustable base or mounts on your wall. As a computer monitor, the display is on par with the NEC – not quite as good as the Sony or Eizo, but certainly no slouch. Press a button just below the screen, though, and the monitor doubles as a very nice Picture-in-Picture capable television set. The MP170 is also available in a 15" version.

22-INCH DISPLAYS - APPLE DISPLAY CINEMA

If money is no object to you, get a DVI-capable G4 and the **Apple Cinema Display** *($2,499 list/street price).* End of story. This is one of the most spectacular, sexy pieces of computer technology you'll ever see. The Cinema Display is a giant version of the **15" Studio Display.** It's made of curvy graphite-and-ice plastic and stands upright thanks to a translucent hinge. One cable runs out of the display and into your Mac, drawing power and video/USB signals. Buttons are hidden. The picture it provides is absolutely gorgeous.

There's enough room for two Web pages open at a time with space to spare. Zoom way in on your Photoshop work. Start projects in Final Cut Pro that require many, many video clips open all at once. Really what you're getting here is $3,000 worth of glee. Sit behind this darling and you'll feel like a captain of industry, 21st Century spaceman and pioneering film director all at once.

SPECIAL THANKS TO > Q MODEL MANAGEMENT FOR ALL MODELS > PHOTOGRAPHER: ANTHONY SAINT JAMES > WRITER: NOAH KRAVITZ nk@threebase.com > MAKE-UP: ISAAK > PHOTO ASSISTANT: MARK EDIE



review 6 > iTunes

BY NOAH KRAVITZ

WITH THE RECENT INTRODUCTION OF CD-RW DRIVES IN IMACS, POWER MAC G4'S AND THE NEW IBOOK SERIES, APPLE FINALLY EMBRACED THE AGE OF DO-IT-YOURSELF COMPACT DISC RECORDING.

iTunes comes pre-installed on every new Mac and is also available for download from *www.apple.com/itunes.* Apple says iTunes *"takes the confusion out of managing your personal music collection."* To find out if that's true, I recently compared Apple's new Power Mac G4 with a built-in CD-RW drive, with CD-RW drives from **LaCie** and **QPS.**

Should I scrap **Audion** or **Soundjam MP** in favor of Apple's newest i-Something offering? The answer is *"Yes."*

iTunes is a great music management tool. The interface is clear and simple, the browse and search tools are powerful. You can also use iTunes to create **MP3s** from CDs and other audio files, listen to those MP3s and transfer them to a portable audio player or blank CD. While the list of supported MP3 players and CD-R drives doesn't cover everything under the sun, both the **Rio 500** and **Nomad Jukebox** I tried with the software loaded up right away *(check the iTunes Web site for compatibility lists).*

I had some trouble with the external CD-RW drives, and a check of the iTunes support Web site revealed that iTunes doesn't like third party CD burning software. Disabling all third-party extensions *(Adaptec Toast, in this case)* and rebooting did the trick. After that, burning audio CDs from iTunes was a snap. Still, Apple should fix this conflict bug — iTunes is supposed to be software for *"non geeks,"* and resolving extension conflicts is a decidedly geeky task.

My other complaint with iTunes is the lack of tone controls. There is, however, a useless *"Visuals"* feature that lets you watch pseudo-psychedelic graphics that pulse in time to the music. The graphics are neat for about 30 seconds and then become repetitive and boring. I'm sure there's some weird connection between the iTunes visuals and those new iMac colors. The bottom line is, Apple should have spent its time and money building an EQ tool into iTunes and had left the crazy visuals at home.

The built in CD-RW drive on the *G4/466* Apple provided us worked just fine. Writing at up to 8x speed *(4x for re-writes)*, the drive churned out a 45 minute long audio CD in less than six minutes. Non-music data CDs were easily created with Apple's new *"Disc Burn"* software that features a very nice drag-and-drop interface that makes adding files to a blank CD much like moving files between disks. *From: Apple Computer, Inc. > www.apple.com*

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review 7 > Canon XL-1

BY RON MWANGAGHUNGA

THE XL-1 IS THE FIRST CAMERA IN ITS CLASS THAT CAN SIMULTANEOUSLY RECORD FOUR CHANNELS OF AUDIO.

Marketed as a high-end consumer model, the XL-1 is not technically a professional camera. Marketing notwithstanding, the quality has been lauded by professionals. XL-1 might be too complex for the beginner, but it is perfect for the intermediate or professional lensperson.

Innovative Features

The XL-1 offers many exclusive features including: 4 channels of audio *(a pioneer in its class)*, a Frame Movie Mode and an interchangeable 16x optical zoom lens - the longest in its category.

Design

The design has drawn raves as well, despite having a noticeable bias towards the right-handed. Creative type lefties should not be too put off. Camera controls are niftily placed on the left-hand side. Ergonomically, the XL-1 subscribes to Apple's user friendly philosophy.

The hard system case is also noteworthy in design. The batteries are mounted on the outside, which flows along well with the general tenor of the camera's striking design. The batteries can last anywhere from half an hour to a good ninety minutes, which has drawn some criticism.

Usability

The XL-1's controls are accessible and usability is above average. The combination of the shoulder rest and built-in optical image stabilization facilitates in capturing the high quality images the consumer is after. The XL-1 shoots well in all sorts of weather conditions. The image stabilization feature makes for an unusually stable image in all manner of shots. The XL-1 is the perfect camera for the *"extreme"* camera person.

The XL-1's unusually stable imaging could also be viewed as a drawback. The standard lens presents difficulties for the consumer who likes kinetic zooms and in-your-face fast pans. Fast pans are not recommended. Whether or not the quality of the standard lens function makes up for the lack of in-your-face zoom is up to the consumer to decide.

Summary

The XL-1 is a cameraperson's camera: a good value buy with some minor drawbacks, but far more benefits. MSRP Price: $4,700 > Street Price: $4,400 > Canon USA 1-800-828-4040 > *www.canondv.com*

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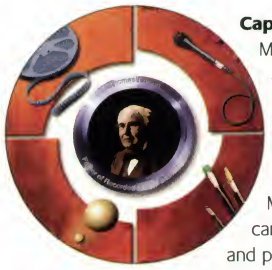
ahead of the curve

review 8 > MovieWorks 5.0

BY DAVID HUTCHISON

AIMED AT BUDDING MULTIMEDIA DESIGNERS, MOVIEWORKS 5.0 FROM INTERACTIVE SOLUTIONS OFFERS A COST EFFECTIVE ALTERNATIVE TO SPENDING THOUSANDS OF DOLLARS ON POWERFUL BUT COMPLEX APPLICATIONS THAT ONLY GET USED FOR THEIR BASIC FEATURES.



Capabilities

MovieWorks is billed as a suite of tools that function as *"lite"* versions of **Photoshop, Premiere, Flash and Sound Edit Pro.** While this may be pushing things a little -- the MovieWorks media editors are far less advanced than these tools -- the point is nonetheless sound. Working solely with the MovieWorks suite of tools, students and hobbyists can capture analog and digital video, edit pictures and photos, create cell-based animations, record and edit audio, and pull all of this content together using an intuitive and memory-efficient tool.

Multimedia content is created, captured, and edited in one of four applications: Animator, Paint, Sound, and Video. The objects produced by these *(and third-party)* applications are positioned and sequenced in the MovieWorks editor itself. MovieWorks provides palettes for controlling playback, organizing, positioning, and sequencing objects, and adding transition effects. Projects can be rendered as **QuickTime** movies and optimized for streaming over the Web or playback on any QuickTime supported platform. Throughout the editing process, users will be pleasantly surprised to watch MovieWorks instantly play back multi-layered projects without the need to first render the project.

New Features

New features in MovieWorks 5.0 include support for QuickTime transitions and scrolling text. *(A Windows version is also available for the first time.)* The QuickTime transitions feature adds plenty of options to version 4.0's basic transition effects, but accessing these extended options requires users to hold down the Option key when choosing the Transitions menu item. There are also a few other idiosyncratic interface behaviors which may confuse novice users. For example, the New menu option is greyed out whenever a project is open for editing, and the Align menu options could be better named.

On the plus side, MovieWorks includes some advanced features which allows objects to be moved along a pre-defined path, resized over time, and position linked to other objects. MovieWorks also includes a helpful slideshow creation feature which allows imported media elements to be distributed across the timeline by user-determined increments. Building a slideshow is as simple as dragging a series of images on to the MovieWorks stage, selecting the objects in the *Sequencer window*, and clicking on the *Auto-sequencer button*. QuickTime transition effects can be applied to the slideshow just as easily.

System Requirements

MacOS: System 7 > Application: 16 MB > Disk Space: 3- MB hard drive space > Price: $99 > From: Interactive Solutions *www.movieworks.com*

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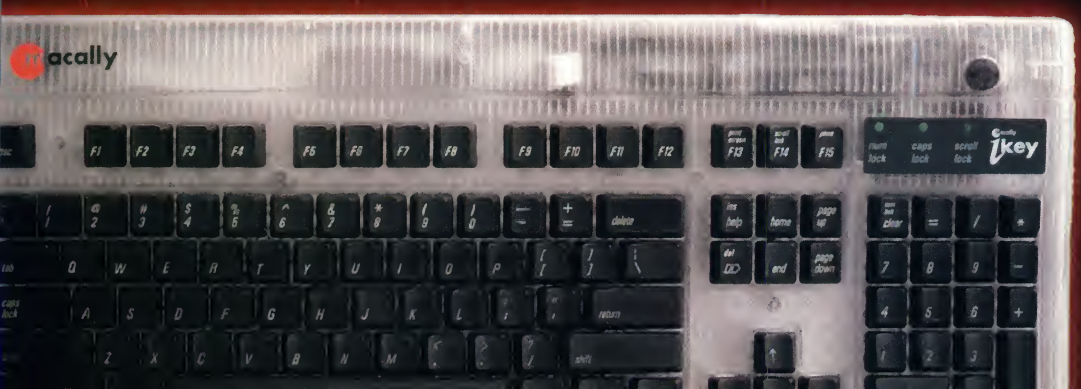

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MacDirectory Person of the Week

Starting this past January, eMac Daily, MacDirectory's Online daily news service, began rounding up the week by choosing the most influential person, place or item in the Mac cosmos. Every Friday like clockwork, the biggest news maker is profiled in the Daily edition. Usually, the Person of the Week is, indeed, a person. But often that is not the case.

Occasionally, a Person of the Week wins more than once. Steve Jobs is a perfect example and sometimes, there are ties. Usually, two people co-dominated the week's news in such a way that it is impossible to single one out over the other. Our prime rule is: each winner must have done something earth-moving in the community.

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You can submit your recommendation to us by writing to letters@macdirectory.com and subscribe to eMacDaily for free at: www.macdirectory.com/4u/newsdaily.html.

Without further ado, here are MacDirectory's picks for the People of the Week:

Fred Anderson, CFO Apple

Among other things, Fred Anderson is sort of the ambassador between the offices in Cupertino and Apple's investors. The position of CFO at Apple also entails management over employees (human resources). In that position, Anderson was recently successful in keeping the Apple work force fairly intact during this soft market.

Bowling Green State University

MacDirectory inaugurated our 'Person of the Week' category with the selection of an institution. About 150 freshmen who had not decided on a major, or who had below average standardized test scores at Bowling Green State University would be given an iBook in the proceeding semester. A new technology center will also be created in the library, so that all students will have access to Apple technology.

Avie Tevanian, Mac OS X Team

As the week of March 23rd drew to a dramatic close, only one topic remained front and center in the hearts and minds of die hard Mac enthusiasts. No, not the Oscars, the Mac OS X release date. On March 24, the anxious waiting came to an end. Over the years the Mac OS X team, led by Avie Tevanian, has drawn blunt criticism from the Mac press for the delays. In summer 2000 even the most optimistic Mac enthusiast felt disappointment as the release date was pushed to January 2001, but we all understood the immensity of the task.

Pui-Wing Tam, Wall Street Journal

Occasionally, an exceptional technology writer writes an extraordinary piece at just the right time and gains the ear of a head engineer or CEO. The Wall Street Journal's Apple Reporter Pui-Wing Tam actually did the unthinkable: Ms. Tam raised the value of the company she covers in a soft economy! On March 29th, several hours after a beautifully penned analysis of Apple hit the streets, a funny thing happened: Apple shares increased 4%.

Larry Ellison, CEO, Oracle

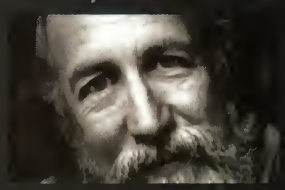
You may love him or you may hate him, but Larry Ellison made the biggest waves in the Mac community on the week of March 16, in particular, and the biggest waves in the hardware sector, at large. Those waves, unfortunately, were not the magnificent changes that one expects from a person of the week; however, Larry Ellison and Oracle are influencing the entire tech sector. On March 1, Oracle delivered its first profit warning in three years. Oracle has blamed the downturn in the US economy as the nation's lack of IT spending.

Mickey Drexter, Apple Computer

Steve Jobs began cultivating Mickey Drexler seriously at the beginning of 1999. After a five month whirlwind courtship, in May, Drexler joined the Board of Directors at Apple. Steve Jobs, a visionary man and fast learner, as well as Apple, will benefit greatly from Drexler's guidance in the transition into high-end retail.Two years after joining the Board of Directors, eMac Daily chose Drexler person of the Week.

Lee Clow, TBWA Chiat/ Day

What do Exene Cervenka, Lil' Kim, Liz Phair, Chuck Berry and Dwight Yoakam have in common? They are musicians, of course, but what else? They star in the latest TBWA/Chiat Day Apple ad, and clearly communicate why Apple is the best for creating customized music CDs. If Dell or Compaq had made the same commercial, they probably would have The Backstreet Boys or, perhaps, Britney expressing their philosophy. TBWA/Chiat Day, however, know Apple's appeal to people who think different. Exene Cervenka thinks different. And Lee Clow knows that.



Oprah Winfrey

Oprah has recently taken a fancy to Apple products. In the February 2001 issue of The Oprah Magazine, O, Oprah lists the G4 cube as one of her favorite things.

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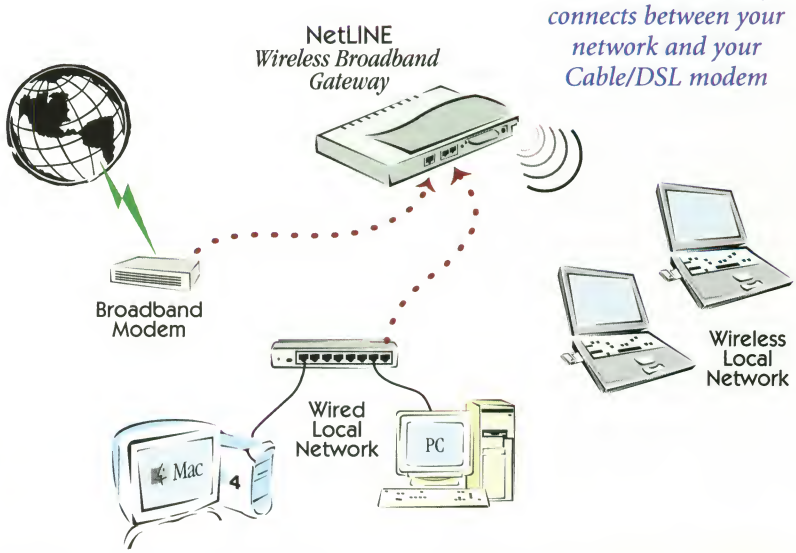


MacDirectory Person of the Week potu

Jen-Hsun Huang, CEO, NVIDIA

NVIDIA CEO and President Jen-Hsun Huang is either one of the luckiest executives in the world, or one of the most able. Whichever the case, he was eMac Daily's Person of the Week at the beginning of March. NVIDIA swept through that week confidently and with brilliance. On the last Monday of February, as most of us were clearing the cobwebs from the weekend past, NVIDIA

introduced the NVIDIA GeForce2 Go 100 and 200 GPUs. Specifically for the mainstream mobile market, they added a quantum leap in dimensionality to multimedia performance on a notebook. In addition, the impact that GeForce 200 and 100 had, along with the TiBook, on thinness and lightness in notebook design will last way beyond that week.

Buzz Lightyear, Pixar and Steve Wozniak, Apple II creator

"At the beginning of February, we had a tie as to who made the

largest waves in the Mac community: Steve 'Woz' Wozniak and Buzz Lightyear. eMac Daily chose Woz for the Heinz Medal, which he was awarded at the beginning of the week. Woz shares the eMac Daily Person of the Week position with Buzz Lightyear, who makes the grade because the animated star singlehandedly tripled Pixar's Σ fourth quarter revenues from the previous quarter."

Cheryl Vedoe, Apple Computer

Other than Steve Jobs, no one has won Person of the Week as often as Cheryl Vedoe. Her first win in early January set the pace for Apple's concentration on regaining market share in the education market. As the electricity of MacWORLD Expo wound down, Apple's Vice President of Education Marketing and Solutions, Cheryl Vedoe, reached out to the Mac community in a way that Apple

executives have not done for many years. For reiterating Apple's commitment and reaching out to regain market share in education, Ms. Vedoe was named eMac Daily Person of The Week.

Bruce Chizen, CEO, Adobe

Adobe dominated the news in the Mac community in mid-April. Strutting into Seybold, Bruce Chizen unleashed the Adobe Streaming Media and the Adobe Digital Video Collection. Mr. Chizen also announced in April the immediate availability of Adobe Acrobat 5.0 software, a major upgrade to members of the Mac community.

Jeff Valvano and Eric Yang, Investigative Reporters

Jeff Valvano of Appleinsider.com and independent Mac financial writer Eric Yang collaborated on a ground breaking work of investigative reporting that, one imagines, gave the gang at Cupertino sleepless nights. Although Apple kept its usual silence with regards to new projects, Mr. Yang and Mr. Valvano uncovered and painstakingly broke the story of the all but confirmed Apple boutique chain. By early April, with the boutiques all but confirmed, eMac Daily chose them People of the Week.

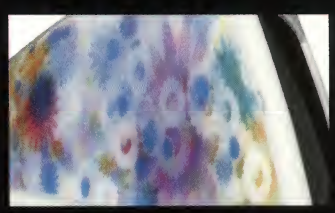
Steve Jobs, CEO, Apple Computer

Was there ever any question that on the week where Steve Jobs presented the Keynote at MacWorld, anyone else could be Person of The Week? Not likely. Steve Jobs took the stage that Tuesday and made two distinct presentations: in one, he introduced new products, and in the second, he outlined Apple's vision. The second he walked that stage he was the eMac Daily Person of the Week.

Ron Okamoto, Apple Computer

The first Monday of April began the Apple news week cycle with the high-level hiring of Ron Okamoto to the position of Vice President of Developer Relations. Like Cheryl Vedoe at Education, Okamoto reports directly to Steve Jobs. And why not?

If Cheryl Vedoe's aggressive performance is any indication of how a manager works when obstacles are removed from their path, then maybe all Apple executives should report directly to Steve Jobs.



Simon Jones, creator, Mac Cards

In the middle of February, nothing stirred up the Mac community like the popular Simon Jones' Valentine's Day MacCards. The day before Valentine's, Mr. Jones made a low key announcement that the cards would be up and running for a day or so. Neither did he suspect that MacCards, now a yearly tradition in the Mac community, still mattered to so many of us.

David King, CEO, Proxim

David King, the Chairman, President and CEO of Proxim, pulled off a major coup in the last week of January. Proxim, the leading supplier of wirefree broadband networking solutions, with a 37 percent share of the market, acquired the popular Netopia in a stunning $223 million stock-for-stock merger. Although the merger has subsequently been called off, back then it was a path breaking move.

Flower Power & Blue Spots iMacs

In the last full week of February, eMac Daily nominated an inanimate object for Person of the Week - Apple's new iMacs Flower Power and Dalmatian Blue. The prime factor in the decision to name a 'Person' of the Week is that a person, place or thing made the largest waves and stirred the sea of opinion in the Mac community. The most controversial issue that week in the Mac community hands down was the divided thoughts regarding the coloring of the iMacs.

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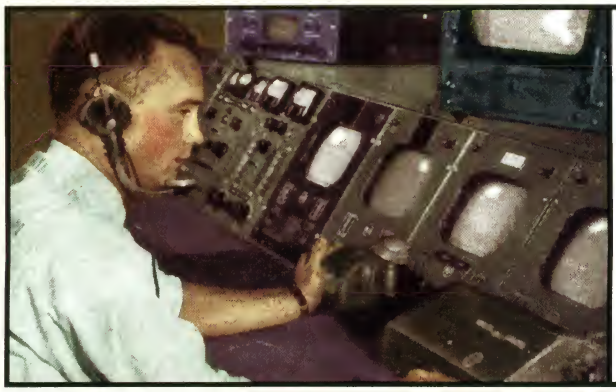

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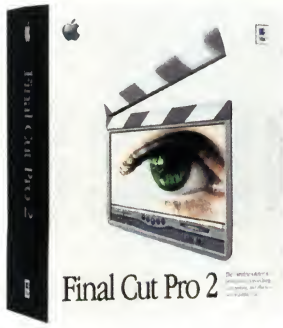

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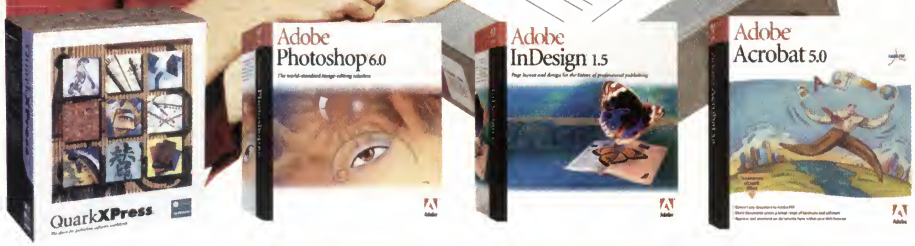

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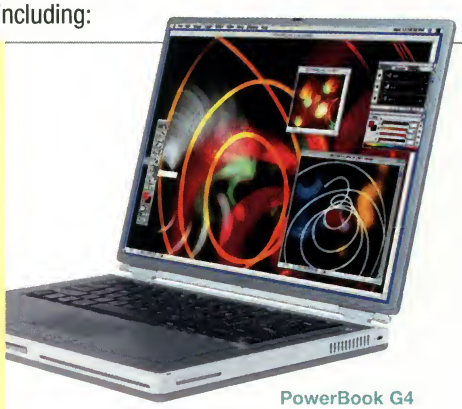

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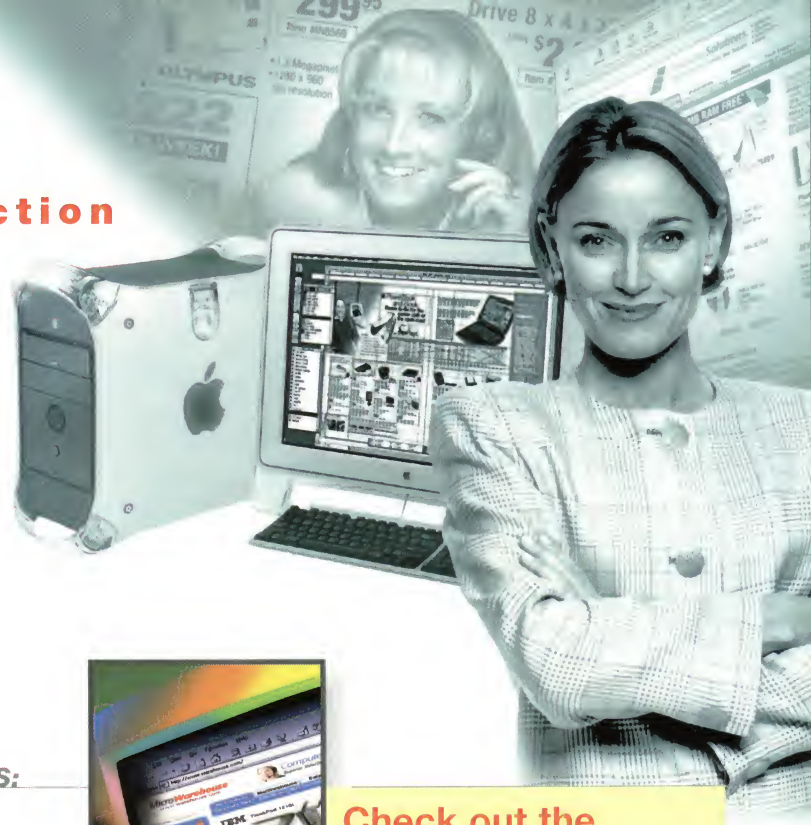

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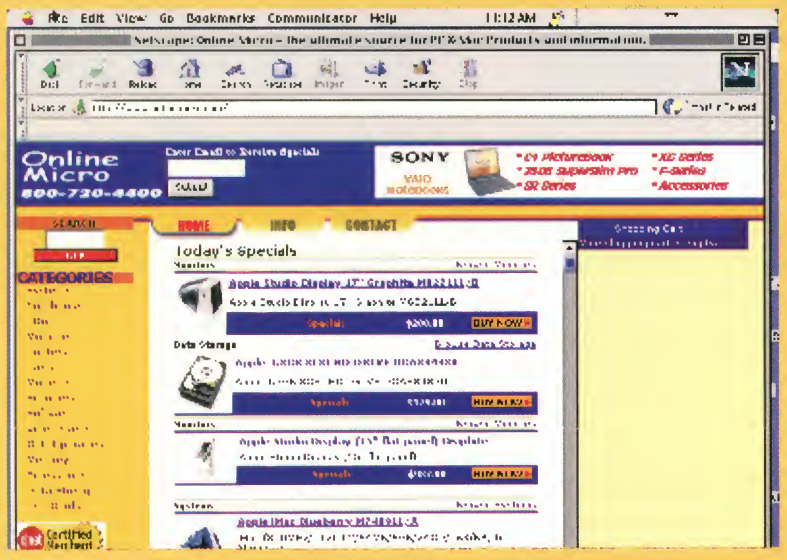

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* 10x Optiol Zoom * 200x Digitel Zoom * 2.5" Flexoble LCD Viewscreen & Color Viewfieder * Long Time Recordieg * Digitel Effects * Digitel Effects

JVC

GRDVL-9800U

* 4" Color LCD monitor
* 500 lines of horizontol &480 lieos of vertical resolutioe
* 10X Optiol Hyper Zoom
* 200x Super Frome Digitol Zoom

GRDV-M90/80

* Meltimedio Interface * 10x Optical Hyper Zoom
* 2.5" High Resolutioe LCD monitor * 25x Digitol Zoom
* High resolutioe color view fieder
* Digitol recording for superior picture & soeed

GR-DVL-M300/500/505/805

PRINTERS

EPSON

Stylus Photo 2000P

*Professional, Archival quality fine art photo printer w/1440x720 PI resolution, print sizes up to 13 "x19" and panorama to 13"x44" Print life rated at 200 years. Includes roll paper holder.

Stylus Photo 1270

* EPSON Stylus Photo 1270 ink jet printer delivers posters and panoramic of 13"x44" in high resolution 1440 x 720 dpi. Included software is EPSON Adobe Photoshop 5.0 LE and valuable plug-inks.

Stylus Photo 2000P.....Call
Stylus Photo 750.....Call
Stylus Photo 875DC.....Call

OLYMPUS

P-330N

P-400

Canon
Photo & Digital Printers

SCANNERS

Nikon

LS-2000

* Fast, with average scan times of 20 seconds at 2700 dpi optical resolution
* Dynamic range of 3.6 is highest available in a desktop film scanner * Multi-Sample Scanning feature gives you the quality of a drum scanner on your desktop
* Allows users to work in RGB, CMYK, Lch and RGB color spaces
* Hot swappable adapters allows switching between film types without resetting scanners or software

LS-30.....Call
LS-4500.....Call

MINOLTA

Dimage Scan Elite New!

* Scans both 35mm sleeves and mounted, positive and negative films in color and black & white
* Optional Aps adapter is available
* 2,820 dpi optical resolution
* 3.6 wide dynamic range
* 12-bit Ad Conversion producing 36-bit color
* Digital ICE correction Enhanceme* Adobe Photoshop LE included * Available for Mac and Windows

New Scan Dual II ...Call
New Scan Multi II ..Call

Canon

Canoscan 2710

* Uses state of the art Xenon lamps for "even more" light and increases image clarity * High reso lution 2720 dpi optical resolution * Scans as fast as 13 seconds per frame* Includes Adobe Photoshop LE

All merchandise is brand new & carries a Full USA or International Warranty. Our 14-Day Satisfaction Guarantee allows for exchanges on products or returns for credit. All returns for credit are subject to a minimum 10% restocking fee. 20% restocking fee for special orders. Shipping & Handling charges are non-refundable. All returns must be returned in original mint condition. Not responsible for typographical errors. Above prices supercede all others and remain in effect until next month's issue.* Indicates price after rebate.

Welcome to MacDirectory's Macintosh Consultants Super Guide!

The following listings are independent consultants and Macintosh experts that provides extensive solutions including training, support, system implementation and more. If you can't located a consultant in your area, you may access over five thousands Macintosh consultants worldwide by going to **www.macdirectory.com/services.html**

For information on how to be included in this guide, please send email to advertising@macdirectory.com

Alabama

AlaTec Associates
Huntsville
205-883-1487
http://www.alatec.com/
Specializes in Macintosh Training Seminars, Network Consulting and Macintosh Troubleshooting.

Epicenter Technologies
Hampton Cove
256-533-9128
http://users.aol.com/djohn4077/Epicenter.html
Software development for engineering/CAE applications (Java, C++), Instrument drivers (Labview, LabWindows, & CVI), Quicktime/MPEG video (Adobe Premiere 4.0), Database design (custom, Hypercard, & FileMaker Pro)

Alaska

Datapro Computer Services, LLC
Anchorage
907-279-4989
http://www.dataprocpu.com
Macintosh specialists and consultants who are capable of handling nearly any aspect of your computer, network and/or software. We are experienced in most aspects of the Apple hardware and software product line.

Arizona

C-3 Technologies, LLC
Chandler
480-917-2596
http://www.c-3tech.com/
Services the Graphic Arts and Print Prepress industry in the Metro-Phoenix area. C-3 has more than 10 years of experience with Macintosh computers and networking.

Corder Associates, Inc.
Mesa
480-752-8533
http://www.cordernet.com
Custom software development and web-based services for Macintosh, Windows and Handheld platforms.

Custom Digital Systems Group Inc.
Phoenix
602-242-5101
http://www.cdsgroupinc.com
Offers products and services including networking custom communications servers, file and print servers, opi servers, custom RAID enclosures, pre-press workstations and more.

HPO SOFT
Phoenix
http://www.amug.org/~hposoft
HPO SOFT provides technical consultation, pre-developed database programs and custom database development along with custom C/C++ program development.

MacinTech
Gilbert
602-497-8385
http://macintech.8m.com/Pages/
MacinTech is your Phoenix-area Mac-only consultant. Some of the services we provide are consulting & diagnostics, hardware & software installation & web design.

Twin Forces, Inc.
Flagstaff
520-779-4227
http://tfe.infomagic.com
Twin Forces provides consulting for all areas of software engineering relating to multimedia and computer graphics to clients all over the world.

Arkansas

Mac Ken-Netics
Fort Smith
501-782-9766
Mac Ken-Netics is engaged in the retail Sales, Service, Installation, and Troubleshooting of all (New & Used) Apple and Apple Macintos computers, internal and peripheral devices, accessories, and networks.

Micro Computer Technologies
Little Rock
501-663-0302
http://www.mctweb.net
We are an Apple Total Solution Provider. We specialize in High-End Graphics, Digital Video, Networking and all
solutions based upon Apple Technology.

California

3m group
Arroyo Grande
805-481-9751
http://www.solutionexperts.com
Paging Services. Internet Access. Ethernet & Classic Networking. Ram, Hardware & Mac OS Upgrades. Web page design & maintenance. Preventative Maintenance Contracts. Macintosh Data Recovery. Apple Solution Experts.

Absolute Advantage, Inc.
Chatsworth
818-718-2027
http://www.absoluteadvantage.com
Founded in 1987, Absolute Advantage, Inc., specializes in offering complete support in the implementation and use of business systems. We provide complete solutions; interfacing with company management, corporate and outside accountants, technical, and clerical personnel.

Accudata Partners Group
Sunnyvale
650-964-1060
http://www.apgi.com
APG is a business to business VAR that specializes in Apple Enterprise computing environments. We build Networks from the ground up, and provide a host of services and sales in Apple Server Platforms, Software licenses, G3's, mobility and complete solutions for any size or type of business.

Allen & Allen Semiotics
Long Beach
562-938-7890
http://www.semiotics.com
Custom Filemaker Pro solutions for the small to medium sized business, as well as Filemaker training services. Web-enabled database solutions and web and graphic design are also available.

Altro Solutions, Inc.
San Jose
408-271-0205
http://www.altro.com
Altro Solutions, Inc. is an international provider of eBusiness consulting, software development, systems integration, and hosted application services specializing in Content-Enhanced eSolutions.

Bischof Consulting Services
Los Angeles
310-486-0240
http://people.we.mediaone.net/bconsvcs/
Mac OS & PC Consulting Insurance Agency AutomationAS/400 To Mac OS & Windows '95. Hardware Installation & Upgrades. Internet Connection. Configuration Recommendations.

Computer Crackerjack
Citrus Heights
916-769-0968
http://www.computercrackerjack.com
Computer Crackerjack enables businesses to do more, using the best technologies available integrated with uncompromising personalized service.We have customized applications for such businesses as Apple Computer and Raley's Superstores.

CORNICE
Upland
909-985-8323
http://www.cornicemac.com/mac
Apple Authorized Sales and Service. Warranty and Out-of-Warranty Repairs. Carry-in or On-Site Service. Factory trained technicians and Geniune Apple Service Parts. Open M-F, 8:30-5:30

Cyber3
Westlake Village
818 706-8545
http://www.cyber3.com
A fully Apple Authorized VAR and Service Provider servicing the graphics, pre-press, video and animation industries. Carrying the full line of Apple products and services.

Database Pros
Huntington Beach
714-964-2482
http://www.databasepros.com/
World renown FileMaker Pro author and trainer, John Mark Osborne, is offering his intermediate and advanced scripting and calculation hands-on training courses in Dallas, San Francisco, Orlando and Boston..

DataBright Management Systems (2)
San Anselmo
415-457-8500
http://www.databright.com
DataBright Management Systems is a premier creator of Macintosh database systems. DataBright specializes in building databases that match and optimize the operations of your business.

Doctor Mac Consulting
Pasadena
626-293-6813
http://www.doctormac.net
We offer on-site technical service to the greater Los Angeles metropolitan area. Our specialties include hardware/software setup, installation, & troubleshooting, data recovery, CD backup and archving, and we also offer a full range of database development services using FileMaker Pro.

Dr. Billy & Assoc.
Blue Jay
909-337-7233
http://www.drbilly.com
We specialize in helping you to leverage your technology investment in new and innovative ways, and when your Mac needs a "Doctor" this one makes housecalls! From custom program and database development to network and website design/administration.

Dr. Mac Enterprises
Lomita
310-530-1719
Providing consultation in the purchase, setup, installation, interface customization, problem solving, and training on MacOS systems. Hardware and software installations.

DriveSavers Data Recovery Inc.
Novato
800-440-1904
http://www.drivesavers.com
DriveSavers is the world leader in Data Recovery Services. All Platforms - All Media. Call (800) 440-1904 today for free data recovery information and tips.

Emerald Creek Consultants
Riverside
909-328-8488
http://www.emcreek.com
Emerald Creek Consultants provides custom training and technical documentation for clients that include Fortune 500 corporations. Services include software user guides, web-based training, online help, usability testing, and multimedia design.

Granite Ridge Systems, Inc.
Hermosa Beach
310-372-1583
http://www.granite-ridge.com
Granite Ridge Systems develops custom software solutions for the Macintosh and Windows platforms. We provide an experienced, multi-disciplinary team for managing all aspects of information system projects.

Greco Technologies
Pasadena
818-432-5299
http://www.greco.com
Greco focuses on small to large size commercial organizations. We achieve creative solutions while recognizing cost sensitivity, business, and planning requirements for our clients.

Highland Systems, Inc.
Sacramento
916-452-3612
www.highlandsys.com
Highland Systems is a women-owned small business which provides technology solutions for non-profits and small to medium size businesses. We offer a wide range of technology solutions from basic upgrades and troubleshooting to system integration and network installation.

Hope Paul Productions
Long Beach
562-438-1306
http://www.hopepaul.com/index.html
Hope Paul Productions provides desktop support, both hardware and software, roll outs, Mac to PC conversions. Mac to PC data conversions in the Los Angeles, CA area.

Ignition, Inc.
San Francisco
415-392-6244
http://ignitiondesign.com
Ignition, Inc. specializes in building Web-based solutions to improve business communication online. We excel at developing systems and processes that require an integrated approach to engineering and usability factors.

Imaging Forensics
Fountain Valley
714-775-3120
http://www.imagingforensics.com
Consulting and training in digital imaging, including needs analysis, cost justification, on-hands training in hardware and software, and installation and set-up.

Infoasis
San Rafael
415-459-7991
http://www.infoasis.com
Infoasis is an Internet service provider and MacOS consulting company. We offer a diverse range of Internet connectivity services: T-1, frame-relay, ISDN hookups, modem dial-ups and networking consulting services, as well as Filemaker Pro database hosting, web site and domain name services.

Mac Edge Consulting
Walnut Creek
510-210-1347
http://pwp.value.net/allright
Mac Edge Consulting specializes in the development, updating, and maintenance of Filemaker Pro databases for business and home on Macintosh, Windows, and NT. We also provide upgrades, troubleshooting, installation, tutoring and data recovery services.

macVolks
Martinez
925-313-0760
http://www.macvolks.com
macVolks provides a wide range of services to help you get the most out of your computer system. These include custom database programmes, Network design and troubleshooting, consulting, and training. macVolks serves the greater California Bay Area, from Sacramento to San Jose.

Mark/Space Softworks
San Jose
408-293-7299
http://www.markspace.com
Publishers of data communications and wireless messaging software for MacOS, Windows and PalmOS. PageNOW!, PageME! Construction Kit, Communicate Lite.

Natann
Pleasant Hill
925 944 1818
http://www.natann.com
We provide on-site Macintosh consulting, installations, network design, troubleshooting,

Internet solutions.Expertise includes cross platform solution with Windows and NT Server, FileMaker Development and the Printing Industry.

Outside Technology
San Anselmo
415-488-4909
http://www.outsidetech.com
Expert custom database development. Author and publisher of Book'em!, the automated reservation system.

Pallium
Sunnyvale
408-734-4455
http://www.pallium.com
Pallium can help you architect your application, either before initial development or with a mature product. Pallium's specialty is the application of deep plug-in architecture, which is similar to plug-in software architectures you may be familiar with but goes much farther.

WebWare Corporation
Sausalito
415-339-8580
http://www.webwarecorp.com
WebWare's MAMBO(TM) and MAMBO (TM) Hosted Services are your leading Brand Resource Management(TM) (BRM) solutions. MAMBO(TM) maintains brand asset integrity throughout the branding supply chain -- from creation to distribution.

Colorado

4Translation, Inc.
Highlands Ranch
303-683-5084
http://www.4translation.com
Full service language translation at the speed of the Internet. Accurate translations, using industry knowledgeable, native language translators. All projects fully edited, reformatted to fit the original graphics and returned to you electronically.

DataCraft
Lakewood
303-232-4321
http://www.DataCraft-Inc.com
DataCraft specializes in providing custom software solutions for business. Areas of expertise include contact management, client & lead tracking, inventory control, database publishing (print or Web), custom printing solutions, bar codes, and magnetic strip readers.

MacSense
Littleton
303-792-5887
Macintosh consulting and troubleshooting at the most reasonable prices.

Rapid Remedies Inc.
Boulder
303-449-5159
http://www.rapidremedies.com
Rapid Remedies Inc. specializes in Macintosh troubleshooting and upgrades. Primary services are of an urgent or emergency nature, in order to get clients up and running as quickly as possible. Secondary services include regular maintenance in order to prevent system failures resulting in emergencies.

Total Recall Data Recovery
Colorado Springs
800-743-0594
http://www.totalrecall.com
Data recovery from all rotating media and most operating systems. With 10 years in the data recovery business we have recovered data for thousands of clients all over the world.

Connecticut

Acme Technologies
Ridgefield
203-431-1601
http://www.acmetech.com
We develop software products for AppleScript and Internet servers, as well as provide custom development services for database development, CGI programming, Java, and stand-alone Macintosh applications.

Computer Seraph
Northford
203-484-7636
http://www.computerseraph.com
Computer Seraph provides a variety of consulting services, specializing in the data management needs of religious institutions. Recommendations, database configuration, data transfer, and training services are available.

Evolution Interactive
South Windsor
860-436-4339
http://www.evolutioninteractive.com/
Evolution Interactive is a group of coders dedicated to the development of next generation Macintosh games and real-time applications. We are hired guns providing consulting and development services to companies that want to push the limits of technology.

McGowan Consulting Group, Inc.
Seymour
203-734-6019
McGowan Consulting Group, Inc. (MCGinc), is a corporation specializing in client/server applications and multi-vendor network design, implementation, and integration.

Washington DC

Folio, Inc.
202-965-2410
http://www.foliophoto.com
Folio, Inc. is a stock photography agency established in Washington, DC in 1985. A large image collection of general subjects ranging form people, finance, health, business, education.

Neal B. Johnson
202-789-3170
As a consultant I provide web content design and production services as well as high quality imaging services. Photoshop, Quark, Illustrator, VRML, Dreamweaver, and BBEdit are my main tools.

Phil Shapiro
202-686-5465
http://www.his.com/~pshapiro/
Training given to nonprofit community organizations, educators, families. Expertise in America Online, the Internet, educational software, web page building.

Delaware

Crosstech Solutions, Inc.
Newark
302-738-4308
http://www.crosstechsolutions.com
Crosstech Solutions, Inc. is an Apple Authorized Macintosh support and service organization. Primary services include (but are not limited to) troubleshooting, document management, client training, network support and design, remote and local backup systems, and software and hardware solutions.

Dragon's Run Engineering & Research, Inc.
Newark
302-731-2972
http://www.dragons.com/
With over 22 years of experience in microcomputers, the skill and commitment of our staff is outstanding. We are on-call 24 hours a day to support our customer's needs.

Florida

MacTechnicians
Winter Park
407-622-4839
http://www.mactechnicians.com
MacTechnicians is a Macintosh software and hardware consulting company located in Orlando, Florida. Generally, we provide assistance to Central Florida business and home users.

Georgia

Atticus, Inc.
Lithonia
770-922-5997
Atticus, Inc. provides custom affordable application development for the small business community. Some less demanding applications are done using FileMaker Pro.

Laser Solutions, Inc.
Atlanta
770-992-3914
http://members.aol.com/lasersolut/
Laser Solutions, Inc., provides technical and creative solutions for bridging the gap between the management of information and its communication and presentation. Our expertise includes

development of custom database applications, integrated publishing solutions, systems integration, and consulting.

Omne Consulting
Suwanee
770-844-9948
http://www.omne.com
Omne Consulting provides systems design and integration consulting serives to businesses in the Atlanta area. Our engineers and consultants are Microsoft, Novell, Citrix, and Vinca certified. We specialize in the integration of MacOS and Windows Systems.

Hawaii

Aloha Computers
Kailua-Kona
808-329-4271
For over five years we have been providing computer services ranging from instruction, troubleshooting, repairs, network design and installation, customized business and database solutions, to purchase support, upgrading and system sales.

Island Mac
Honolulu
808-521-5951
http://www.island-mac.com
Independent Macintosh Consultant with 12 years experience specializing in Graphics and Networking. Former chief consultant at San Diego Supercomputer Center on UCSD campus at La Jolla.

Mac Made Easy, Inc.
Honolulu
808-988-2665
http://www.maceasy.com
Authorized Apple Value Added Reseller & Authorized Apple Service Provider. We also do: Consulting, Macintosh Sales, Computer Repair both On-Site & at our Shop, AppleCare, Educational Software,Technical Support.

Oahu Computers
Honolulu
808-524-1111
http://www.oahucomputers.com
Provides Service & Repair on Apple, HP, Compaq, IBM manufactured equipment, in & out of warranty, no matter where you purchased it.

Idaho

Ednetics Incorporated
Post Falls
208-882-7758
http://www.ednetics.com
Education Service Provider
Network Design, Maintenance Contracts, Support Contracts, System Analysis, Communication Systems, Custom Database Development. Educational Hardware and Software Sales.

Illinois

CSPC INC.
Sleepy Hollow
847-428-9262
We specialize in practical & affordable, Enterprise & Business Solutions for the small to medium sized organization. Including: Analysis, Training & Implementation, Accounting, Quality Systems, productivity, computer hardware, software, Networking, eMail, Inter & Intranets, Database, data protection & recovery.

Hueser and Associates
Chicago
312-649-0491
Over 25 years of systems experience in all size companies. Professional database development for Windows and Macintosh environments using Filemaker Pro. Experienced in Contact Management, Executive Recruiting, Real Estate and Finance.

Pritikin Computer Services
Chicago
773-973-4242
Got a problem? We are here to solve it for you. MacOS, hardware, software, servers, printers, scanners, modems--we do it all. We specialize in cross-platform (Mac to Win 9x or Win NT) and data migration issues.

The Miller Group
Springfield
217-789-4430
http://www.miller-group.net
Developer of HR3, Cobra3, HR3 Pro, The Miller Group is a consulting and professional services firm, working to help clients improve their business by exploiting Internet-based technologies to deploy customized Internet, intranet and extranet solutions.

The Shulman Consultancy
Highland Park
847-266-0564
Comprehensive knowledge of the Macintosh, its hardware and software and the microcomputer marketplace. Strong relationships with major hardware and software manufacturing companies and vendors. An available network of professional resources in Accounting, Graphic Design, Communications, Marketing, Insurance and Legal as well as Computer Technical Matters.

Indiana

Enterprise Design Services
Westville
219-785-2352
EDS is a full service advertising agency dedicated to helping clients promote their business or service.

Ken Jordan - Macintosh Computer Consultant
Fort Wayne
219-485-6398
Apple-trained Macintosh consultant. Specializing in: business and individual consulting; hardware and software troubleshooting, repair and maintenance; recommendations for hardware and software purchase; hardware and software setup and configuration.

OBjectic Systems, Inc.
Franklin
317-738-0174
OBjectic Systems, Inc. is a professional software development firm dedicated to providing Apple dedicated, and cross-platform, solutions to large businesses. Our emphasis is on Internet and database solutions and the design of related client software applications.

Virtual Indiana
Battle Ground
765-567-2220
http://www.Virtual-Indiana.com
Specializing in: Internet Consulting Services & Site Design and Delivery, Macintosh Configuration and Troubleshooting, Teaching Teachers to Effectively use Classroom Computer Technology, and Multimedia Project Design and Development.

Iowa

Blocker Consulting
Muscatine
309-239-4315
Serving Eastern Iowa and Western Illinois since 1995.
Service available 24 Hours a day. Reasonable rates, and speedy solutions. Professional on staff that has been working with Macs since day one.

D C Consulting, Inc.
Ankeny
515-964-9034
Keep track of your customers and prospects, find new ones, and make it easier than ever to work with them and satisfy their needs using sales automation and network solutions.

Kansas

Best Macs Computer Solutions
Lawrence
785-550-7370
http://www.bestmacs.com
Northeast Kansas' top-notch source for Mac OS repair, maintenance, networking, installation, and upgrades. We're Apple certified and our work is guaranteed to be done right the first time.

CompuMaster
Mission
913-362-3900
CompuMaster's vision is to be an international leader in technical training. We strive to provide quality training and vital technical information to customers.

dbVisionWorks
Overland Park
913-381-1843

The mission of dbVisionWorks is to assist small to medium sized businesses by helping them to define their business, which in turn helps them to operate more efficiently, effectively and profitably through the use of custom database solutions.

Kentucky

Applied Arts Ltd.
Lexington
606-225-1572
http://www.a2soft.com
Kentucky's #1 FileMaker Pro expert. FileMaker development, consulting, training, networking, remote management, advanced program integration, and internet web design.

MacXpediter
Pikeville
606-432-7201
Mac Plus up to the Power PC, G3 services by contract. Various degrees of troubleshooting and problem solving capabilities that range from friendly e-mail advice up to a fully professional grade Operating System .

Louisiana

Joe Hyde
Haughton
318-949-0680
http://www.jjhyde.com
Unix and Apache web server administration/ configuration. Photoshop/ Illustrator/ Acrobat/ PageMaker, Perl and CGI installation, HTML, all levels.

Maine

Brickhouse Computer Services
Gray
207-657-4102
We help clients choose, configure, and set up Macintosh computers. We specialize in Macintosh troubleshooting.We offer reasonable rates and individualized instruction.Our services are available in your home, office, or our office.

Maryland

Chesapeake Systems
Baltimore
410-243-1023
http://www.chesa.com
Chesapeake Systems is a Baltimore based service-oriented organization specializing in Mancintosh sales and service and web site design.

Foxglove Communications
Timonium
410-453-0777
http://www.foxglove.net
We create New Media and print communications for business, industry, education and government. Our services includes print design and consulting, multimedia development, interactive software, website design, eCommerce, and online database solutions.

Mac Support Solutions
Frederick
301-662-0359
www.netcom.com/~gfisher1/macsupportsystems.html On-Site Setup, Training, Technical Support, Consulting, Internet Setup, Phone Support. Specializing in Apple Macintosh.

MacMedics Baltimore
Millersville
800-761-6227
http://www.macmedics.com
MacMedics is a regional Macintosh service and consulting firm. MacMedics specializes in the support of critical use Macintosh environments. We try to look beyond the current problem or issue so that we can address the problem from a base level.

TechSupport, LLC.
Aberdeen
410-273-0883
jciesla@techsupportme.com
We want to work with you by: helping you make informed purchasing decisions; offering routine maintenance; and giving you unsurpassed support when you do run into a problem.

Massachusetts

Aptworks Consulting
Cambridge
781-648-4782
http://www.aptworks.com
Welcome to Aptworks Consulting. We specialize in FileMaker Pro database development and Web page design for businesses, schools, and individuals.

Atlantic Associates
Sudbury
978-443-0560
http://www.atlantic-associates.com
Atlantic Associates provides custom solutions to firms with Windows and Macintosh environments. Our services includes planning, design, development, installation, training and support.

Boardwalk Software
Framingham
508-877-3309
http://www.gansler.com
MacOS and Java custom software development, project management, and consulting. Clients have included Apple, Lotus, MIT, Polaroid, Scientific American Magazine, DEC, and JVC. Please visit www.gansler.com for my resume and letters of reference.

EthanNET Technology Consulting
Brighton
617-787-8870
EthanNET provides Technology consulting services specializing in internet/intranet integration, focusing on Macintosh solutions. EthanNEt staff possess extensive knowledge in the following:MacOS,Remote Access (Shiva, CISCO),LAN/WAN design (CISCO, FORE, BAY),WindowsNT.

Mystic River Software
Arlington
617-641-2828
http://www.mysticsoft.com/
Software development for Macintosh, Windows, and the Web. Technologies include: Electronic Imaging, Client/Server, Web Commerce.

Michigan

Access Computer Technologies
Grand Rapids
616-456-6867
Specializing in mac database and custom application development. We have experience connecting to specialized peripheral equipment, and printing/scanning bar codes in high-volume production environments.

Big Apple Consulting Associates Inc.
Sault Ste. Marie
705-942-8810
Providing Macintosh services since 1984.Specializing in OS, software, hardware installations & upgrades training.

Crittenden Consulting
Dexter
734-426-4411
http://www.crittendenconsulting.com
We provide computer consulting, custom database programming, networking consulting, and website design services.

Foresight Solutions, Inc.
Okemos
517-381-2080
http://www.foresight.com/
Foresight Solutions specializes in developing business management applications and plug-in tools for database developers. Our flagship product, the A4(r) Business Management System, offers customers the best in accounting functionality and management features.

supportTEX
Eastpointe
810-771-6610
http://www.supporttex.com
supportTEX can help you with individual training, and technical support via telephone.

Minnessota

About Computing...
Minneapolis
612-379-0174
http://www.aboutcomp.com/
Mac system setup and maintenance, networking, remote access and Internet support. Mac-Windows integration and cross-platform software solutions.

Babcock, Ltd.
Ham Lake
612-434-2375
http://www.babcockltd.com
We are a group of knowledgeable, dedicated

professionals engaged in the business of custom software development. We can connect your corporate information to the internet through the world wide web.

ProDirect, Inc.
Bloomington
800-524-9952
http://www.nowmicro.com
ProDirect's PowerSTOR Value hard drives are the storage solutions to turn to for any home user or professional. PowerSTOR Value is ProDirect's answer to the need for a Narrow SCSI storage solution for legacy Apple systems without a PCI bus.

The Geek Squad
Minneapolis
612-343-GEEK
http://www.geeksquad.com
The Geek Squad is a 24 Hour Computer Support Task Force. With our focus solely on computer support and repair, we offer flat-rate pricing for carry-in, on-site or emergency service for everything from setups and installs to upgrades.

Mississippi

Pepperlans Productions
Tupelo
662-680-5683
Filemaker Pro Database development, applescript, Cad Work, Technical Instruction, Technical Writing, Desktop Publishing.

Missouri

AppleButter
Sullivan
573-468-2147
http://www.applebutter.com
We are a new company offering a variety of services to our clients. We provide service to clients in the following counties in Missouri: Franklin, Crawford, Gasconade and adjoining areas upon request.

Insanely Great Macintosh Consulting Services
University City
314-862-1312
http://www.insanelygreat.net
We provide support for creative users. From training and setup for the less experienced to expert advice for those who need to get every ounce of power out of their Macs, Insanely Great has affordable services for all Mac users.

Proteron, LLC
Kansas City
816-765-9383
http://www.proteron.com
We do web site development and internet/database interfacing, as well as online software publishing.

The Mac Store
St Louis
314-453-9166
http://www.macstore.com
We are the Midwest's largest Macintosh only reseller and service center. You can purchase most of our products through our web site also.

Montana

Glacial Designs
Bozeman
406-582-0168
http://www.glacial.com
A new company started in the Bozeman/Belgrade area consisting of Mac and PC experts. Our primary focus is in web design, but we also provide Macintosh consulting at affordable prices.

RAM Runners
Kalispell
406-257-9311
Authorized re-seller for Apple, Adobe, Macromedia, ViewSonice & more. Over 25 years combined experience. Specialize in DTP solutions.

Nevada

GAMMA Productions
Reno
702-329-5258
http://www.gammaprod.com
GAMMA is a full service media development company, specializing in Web Design, Video/Audio Production, Interactive Multimedia, Animation, and Print Design.

Hanley & Associates
Las Vegas
702-396-0697
Independant Macintosh Consulting Group with experience in website design, filemaker pro building, to purchase advise, system setup, troubleshooting, and minor hardware repair.

New Hampshire

Concord Software, Inc.
Merrimack
603-880-8151
http://www.concordsw.com
C, C++ & Java for Macintosh platforms. We are releasing a new Server (Spartacus) based on XML with a JAVA Browser and Application Builder called Javelin. We are experienced in Windows NT and UNIX, and built several servers front-ending ORACLE, SYBASE and currently have a Server project under way for INFORMIX.

Enigami
Londonderry
603 437 1337
http://www.enigami.com
Macintosh Software Engineering Consulting
C/C++, MacApp, PowerPlant, User Interface Design, SCSI. Over 10 years experience programming Macintosh.

Panoramac Consulting
Hanover
603-632-9048
Macintosh focused consulting.
Providing the full range of consulting services, from general upgrade and purchase information to complete office layout and installation.

QED Technologies
Nashua
603 882-0810
http://www.qedtechnologies.com/
Contract Macintosh programming services. Developers of credit profiler and credit reporting software for Macintosh.

New Jersey

D3N Creative, Inc.
River Edge
201-394-5141
http://www.d3nc.com/mac.html
At D3NC, we provide friendly, personalized consulting services to small- to medium-sized design studios, ad agencies and businesses in Northern Jersey. Got a Mac question? Let us help.

Data Concepts Info. Tech. Corp. (DCIT)
Ridgefield
212-714-7734
http://www.dcit.com
DataConcepts Info. Tech. Corp., provides the full scope of services associated with custom solutions development including operations and needs analysis, system design, software development, hardware configuration, installation, training, support and maintainance for small, medium, and large businesses and professional offices.

Intrface Consulting
Montville
973-263-5300
http://www.intrface.net
INTRFACE Specializes in the networking of Mac OS machines, Windows machines, Dos machines, and Unix machines in a LAN(Local Area Network), WAN(Wide Area Network), or both. We specialize in high traffic networking.

MacSultants
Moorestown
609-273-3255
http://www.macsultants.com
Founded in 1990, we are specialists in color pre-press, publishing, networking, communications, internet and intranet connectivity. We provide sales, support and training on all Mac applications.

MZachary Consulting
Hoboken
917-696-5656
http://www.mzachary.com/mzachary.html
MZachary Consulting specializes in complete systems integration for all Macintosh and Mac/NT cross-platform environments ranging from single-user systems to multi-user corporate LAN/WAN topologies.

Prodigal Systems Consulting Group
Long Branch
908-571-4537

Macintosh Systems Integration, consultants for wiring, installation of 10bT networks, Macintosh Troubleshooting and Upgrading.

RMS Consulting, LLC
Saddle River
201-236-2515
http://www.rmsconsult.com
RMS Consulting , LLC based in Saddle River , New Jersey is a full service IT consulting firms . Our clients are primarily Wall Street firms and the Fortune 500 comapnies that are based in NY / NJ / CN area .

New Mexico

Black Rock Mac Consultants
Santa Fe
505-466-8094
http://www.blackrockmac.com/
Black Rock Mac Services include: Help with Macintosh system selection & set-up,Training in all aspects of Macownership, Updating system software, Troubleshooting hard disk, system, and most software problems,Page Layout, desktop publishing and design, Programming & scripting,and Database development.

Sigma 4, Inc.
Las Cruces
505-382-8799
http://www.sigma4.com
Sigma 4 primarily offers Consulting Services on the Apple Macintosh Platform, custom database development using 4D by ACI, and custom software development using many of the development environments available for the Macintosh.

SUBIA
Albuquerque
505-345-2636
http://www.subia.com
SUBIA is a full-service graphics resource in Albuquerque, NM. SUBIA specializes in electronic pre-press, short-run on-demand digital color printing, graphic design and production, presentation graphics, multi-media and World Wide Web page and graphic design.

New York

A to A Graphic Services, Inc.
New York
212-229-0300
http://www.a2a.com
A to A Graphic Services, Inc. is a full-service production company providing advertising agencies, graphic designers, publications, corporations and the entertainment industry with typography, prepress services, custom color proofing, wide-format proofing, digital file transfer and digital asset management.

Association of Graphic Communications
New York
212-279-2104
http://www.agcomm.org
AGC provides individuals and organizations in New York, Long Island and New Jersey with career guidance, up-to-date industry-specific education and professional development training conducted by the top practicing professionals in graphic communications.

Computer ER
New York
212-317-9233
http://www.computerer.com
As a complete solutions provider, Computer ER serves as a single point of contact for all computer issues, from hardware to software, networking to computer repair.

Infohouse, Inc. (Network Plus)
New York
212-220-4242
http://www.infohouse.com
Manhattan's oldest Mac Specialist since 1995.
Dial-Up Services Offered : 56k Rockwell (flex), ISDN
Dedicated Access Services Offered : 56K, FracT1, T1, Frame Relay. Other Services : Real Audio, iCat, FrontPage, Cold Fusion. Fees : Dial Up PPP $20/Month , Virtual Domain WWW hosting

J.U.M.P! Inc.
New York
212-741-4931 741-4931
http://www.jumpspace.com
We pride ourselves in knowing a lot about computer technology,how it works, why it doesn't, and how to fix any problem with software, hardware, or networks. We also understand how to solve problems that arise as a result of interbreeding of platforms in a business environment.

Machattan Incorporated
New York
212-243-9393
http://www.machattan.com/
Machattan Incorporated is an Apple Authorized Reseller and Service Provider in New York City. We speialize in a broad range of corporate macintosh support services from hardware and software trouble shooting to workflow management and internet based solutions.

n24x7 Corp.
New York
888-my n24x7, 212 242 5100
http://www.n24x7.com
n24x7 Corp. has an expanded services offering that include complete computer networking services to businesses requiring technology experts.Services include network design that enables businesses to improve productivity with optimized data-flow throughout an organization.

Novaworks Computer Systems, Inc.
New York
212-604-9999
http://www.novaworks.com
Novaworks Computer Systems, Inc. has been a leading supplier of computer systems and computer services since 1987. We design and sell systems for digital video, graphics, publishing and design. Our offerings include on-site service and software contracts, networks, servers and more.

Seven Staffing
New York
212-254-8600
http://www.sevenstaffing.com
We're a temporary and permanent staffing company in New York. We can help you with: Print, Web, Tech Support, Presentations, Word Processing, Administrative, Design, Production... and more!

Tekserve
New York
212-929-3645
http://www.tekserve.com
What we do... Carry-in service, repair and upgrade of Macintosh Computers, both in and out of warranty. Most upgrades and some repairs are completed while you wait. Recover data at low fixed prices.

United Digital Artists/Apple Market Center
New York
212-777-7200
http://www.uda.com
United Digital Artists is the nation's premier new media and Web training and consulting company, comprised of hundreds of first-rate instructors, consultants, programmers and artists , digital photographers, designers, musicians, writers, videographers, CD-ROM and Web developers engaged in the creation of interactive products and Internet services.

North Carolina

After Hours Consulting
Raleigh
919-271-7479
http://home.att.net/~afterhoursconsulting/
Macintosh contract system administration, buyers advocacy, repair, troubleshooting and training for the North Carolina Triangle region.

Cicada Conslting Group, Inc.
Raleigh
919-664-8086
http://www.cicada.com/
Cicada Consulting Group is a networking and system design consulting firm. We specialize in creative and technical aspects of database, network and website design. We are proponents of Macintosh-, NeXT- and Be-based work environments.

Cox Consulting
Wilmington
910-350-8018
I am a free-lance education consultant. My areas of expertise are: Macintosh educational training and consulting. Training in :Clarisworks, Hyperstudio, MSWorks, Intro to the Mac, Advanced Mac Skills, Classroom Publishing, Integration of technology into the Curriculum, additional educational software training.

Everything Macintosh
Zebulon
919-404-0222
http://everythingmacintosh.com
We specialize in troubleshooting Macs and networks, and since the majority of problems experienced by users have their roots in the software, we have expertise in all common software packages as well as the MacOS.

Ohio

Creative Consulting Services
Amherst
440-985-1735
http://www.ccsmac.com/
Creative consulting Services provide Internet and Macintosh consulting services. Internet services include web site design and hosting, forms, database and e-commerce sites. Macintosh support includes troubleshooting hardware and software problems.

MacMobile
Columbus
614-257-1438
http://www.macmobile.com
MacMobile provides Macintosh service and support to the Greater Columbus Metropolitan Area. MacMobile is run by Tom Davis who has over eighteen years computer experience. On-site and phone consultations are provided.

Tubbs Consulting
Dublin
614-761-0266
http://www.tubbs.net/
Tubbs Consulting provides services for computer users on many platforms. We specialize in 3D design & illustration,animation and video. We also provide technical support and consulting services in the areas of Software and Hardware, \networking and software development.

Oklahoma

MacServ, Inc.
Oklahoma City
405-721-4181
http://www.macserv.com/
We are Oklahoma's ONLY Macintosh-only Reseller, Service Provider, and Solutions Provider. We provide solutions for general consumers, and the printing, publishing, small business, and graphic design markets.

Mega Watts Computers
Tulsa
918-664-Macs (6227)
http://www.megawatts.com/
We are an Apple Authorized Value Added Reseller. We are fully authorized to sell new Apple computers, including PowerBooks, G3's, iBooks & iMacs. In addition we also sell Factory Refurbished Apple products.

;) solutions
Bartlesville
901-331-0368
We're a small company that focuses on the home/small business market. We offer consulting, technical support, hand-holding, and other related services to the northeast Oklahoma market.

Oregon

Axelrod Consulting
Tualatin
503-691-2880
http://www.axelrodconsulting.com
We provide professional software development services for the Macintosh, Windows and Windows CE platforms, and we've been developing Macintosh software since 1984 (former Apple employee).

Creativepro.com
Portland
800-796-9798
http://www.creativepro.com/
Creativepro.com is a one-stop, quality resource for creative professionals. Creativepro.com efficiently organizes industry headline news, listing up-to-the-minute information culled from content providers including The Associated Press, Ziff-Davis, Mac Publishing LLC, Publish Magazine, PR Newswire and other sources.

Expert Macintosh Consulting
Eugene
541-344-8850
http://www.macexpert.com
Personal and affordable Macintosh assistance for corporate, small business, home and educcation users. Specialists in Mac tech. support. Maintenance contracts available. Internet installation and web site design.

Fitch & Fitch
Portland
503-760-9278
http://www.imagina.com/webpages/tfitch/
Now in our 10th year, Fitch & Fitch provides FileMaker Pro database development, website design, and Macintosh support services. We can also turn your QuarkXPress and PageMaker files into Acrobat files: put your catalogs and support materials onto CD-ROM!

Sherman Consulting, Inc.
Monmouth
503-623-4648
http://www.sherm.com
Our primary focus is consulting and training for special education inclusion. We also provide general technical support for Macintosh systems, adaptations for special needs, and Frontier-based web site services.

Valley Software Company
Grants Pass
541- 471-0028
http://www.valleysoft.net/
We Offer On site Troubleshooting and Consulting for:Macintosh, DOS/Windows, and UNIX Systems. Specializing in Internet/Intranet Software Configurations. Hardware and Software solutions available

Pennsylvania

5-Minute Mac Consulting
Wampum
724-535-0990
http://www.5minutemac.com/
The tri-state area's leading Macintosh computer support resource for purchase planning and advice, workstation setup and configuration, network design and installation, general troubleshooting, technical support, hardware and software upgrades, and user productivity training.

CompuNerdz
Clarks Summit
570-586-4503
http://compunerdz.com
Full service Macintosh repair, upgrade, training, web design and consultation. Open 24/7 in Northeastern Pennsylvania.

Desktop Design Associates, Inc.
Allentown
610-395-9230
http://www.ddalink.com
Founded in 1987, Desktop Design Associates, Inc. is an Apple Solution Expert (ASE) specializing in the graphic arts and electronic publishing industries. DDA provides consulting, sales, service, support and training.

MAC Technology Groupe, Inc
Bensalem
215-245-8144
http://www.mtgroupe.com
Mac Technology Groupe is a computer consulting, service and sales organization. We specialize in the implementation of Macintosh and PC workstations/fileservers in the graphic arts, production, pre-press and education industries.

Nathan White
Horsham
215-672-0475
http://www.voicenet.com/~nwwhite/pro
Software and Database design, Internet Services, Consulting. Direct Mail industry specialist with experience in DOS/VSE, AFP, and EZ-Letter. Cobol and Assembly work. Migrating developement and production to PC environment.

Rhode Island

Gravity Storm Inc.
Tiverton
401-624-2815
http://www.gravitystorm.com
Gravity Storm Inc. is a technology consulting firm located in Tiverton, Rhode Island. We specialize in assisting small to medium sized businesses throughout southeastern New England to get the most out of today's technologies.

The ICon Group
Johnston
401-831-3946
http://www.theicongroup.com/iconinfo/
The ICon Group provides innovative consulting services to education and business customers. Our services include technical consulting, planning, systems design, custom development, and staff development.

South Carolina

Always Thinking, Inc.
Beaufort
800-556-9559
Always Thinking provides professional Macintosh software development serives to software publishers and corporate clients. Our programmers have a wide variety of skills ranging from solid GUI design and implementation down to low-level system extensions.

Computer Consultants Group
Charleston
843-722-7607
http://www.ccgnet.com/
Computer Consultants Group (CCG) specializes in servicing small to medium sized companies, as well as individuals. CCG provides comprehensive consulting services to clients. CCG plans and executes installation and implementation of hardware and software systems.

The Mac Doctor, Inc.
Greenville
864-421-0374
http://members.home.net/macbones/
Local Greenville, SC area Macintosh support. Consulting, repair, networking, new system setup/orientation, private tutoring/classroom training, and quarterly maintenance contracts with no 'up-front' charges.

South Dakota

MacDoctors
Sioux Falls
605-333-9821
http://macsalesandservice.com
MacDoctors, an Apple Authorized Dealer and Service Provider, has been serving business and publishing customers in the Tri-State area for over ten years. We pride ourselves in prompt response time and an extended knowledge of the Macintosh platform.

Computer's Etc.
Rapid City
605-342-9204
Computer's Etc. is a business specializing in Macintosh consulting. Areas of expertise are Macintosh video editing solutions, business database and spreadsheet design solutions. Computer's Etc. also specializes in cross platform solutions and cross platform data and file transfer from PC to Mac and Mac to PC platforms.

Tennessee

Creative Software Solutions
Fayetteville
931-438-0727
http://www.creativeswsolutions.com
Creative Software Solutions is a database consulting company specializing in the development of off-the-shelf and custom FileMaker Pro database solutions (Macintosh and Windows) for all types of businesses and organizations.

Duthie Associates, Inc.
Nashville
615-386-3061
http://www.duthiemm.com
Duthie Associates, Inc.'s services include consulting and development of interactive multimedia business presentations, and training programs. Programs are delivered on Macintosh and Windows computers.

Image One Solutions
Cleveland
423-476-1558
http://www.imageonesolutions.com
Our expertise is FileMaker Pro. Individually customized solutions for your business, including internet features with database-driven web sites and complete FileMaker Pro hosting.

The Macsmith
Antioch
615-360-8641
Highest quality Macintosh Service!
Very successful since starting in June of 1995. (Quality has a way of getting its own word out).

Texas

Complete Data Solutions, Inc.
Austin
512-329-6161
http://www.compdata.com
Complete Data Solutions (CDS), an innovator in the technology services industry, has pioneered a new process to quickly analyze and identify a company's core strategic issues, then develop an information technology (IT) plan that addresses the company's current challenges and makes the most of their future opportunities.

Datavista
Austin
512-832-4123
http://www.datavista.com
Information Services for Presentation, Media & Content -and- technology. Solutions for Macintosh e-Business.

PDQ
Houston
713-225-5669
http://www.pdq.net
Entech is the premier provider of business internet service in the Houston area (as ranked by Houston Business Journal). We provide consulting services, internet connectivity (business only), website hosting, website development and website programming.

Mr. MacHead
Dallas
214-351-2700
http://www.mrmachead.com
Mr. Machead offers Macintosh technical support for both hardware and software. Offering Macintosh integration solutions and cross-platform connectivity between Macintosh and DOS, Windows and NT networks.

The Mac Guru
Bastrop/Austin
512-278-8098
http://www.sbi-enterprises.com
The Mac Guru offers expert, on-site support & services to Austin and Central Texas Mac users, including setup, training, troubleshooting, hardware and software installations, upgrades and networking.

Utah

Aaron W. Beck Co.
Salt Lake City
801-263-6506
http://www.awbeck.com/
Database and networking system specialists. Creating network database solutions using FileMaker pro to refine company throughput and information sharing and knowledge through personalized training.

ExperCom
Hyde Park
888-563-6112
http://www.expercom.com
ExperCom sells and services new, used and reconditioned Macintosh computers and accessories.

Red Rock Software, Inc.
Salt Lake City
801-322-4322
http://www.redrocksw.com
Analysis & Design - experience with complete software lifecycle on commercial, shipping products, OOA/OOD methodologies are used as a matter of course for both in-house and for-hire projects.

Vermont

Blue Wave Software
East Thetford
802-785-2547
http://www.bluewav.com
Blue Wave Software designs and develops software for new media applications, including digital audio, video, and the web.

Sylvan Software
Norwich
802-649-2231
Sylvan Software provides consulting services to businesses, institutions and individuals in Vermont, New Hampshire and northern Massachusetts. We specialize in custom databases built using ACI's 4th

Dimension and Sybase's PowerBuilder.

Virginia

Capitol Mac
Richmond
804-358-3100
http://www.capitolmac.com
Capitol Mac is Richmond's only Apple Specialist, in addition to being an Authorized Value Added Reseller and Apple Service Provider Plus. Capitol Mac is the source for Apple Computers and peripherals for graphic designers, videographers, business users and hardcore gamers in and around the Richmond, Virginia area.

Seneca Support Technologies
Vienna
703-903-0200
http://www.seneca.com
Seneca Support Technologies provides high quality rapid response help desk solutions to Fortune 2,000 companies, VARS, Resellers, and Consultants. Seneca offers truly scaleable technical support solutions featuring toll free 800# access, rapid response priority technical phone support.

Source 3, Inc.
Springfield
703-569-5000
http://www.source3.com
A women owned full service cross-media communications company. Expert in all major software packages.

TASC
Arlington
703-558-7400
http://www.tasc.com/
TASC develops and distributes cutting-edge products and services designed to help our clients meet their own ambitious technical goals more efficiently and cost-effectively.

TECHEAD
Richmond
804-782-6971
http://www.techead.com
TECHEAD provides Computer Training, Technical Staffing, and Web Development services. All of our training classes are taught on the Mac platform with a focus on Web and Multimedia Tools such as Dreamweaver, Flash, Fireworks and Director, as well as, classes in graphics apps such as Photoshop, Quark, Illustrator and FreeHand.

Washington

ActiveMac
Seattle
206-297-8834
http://www.activemac.com/
ActiveMac is a computer consulting firm specializing in web design and hosting, scripting and office automation (including AppleScript, FileMaker, etc.), and on-site troubleshooting and support.

Hewitt Consulting
Chehalis
360-740-1090
http://www.hewittco.com
We specialize in local and state government services, election systems for state and county governments, and electronic commerce. Our primary focus is developing quality business applications using high speed database technology and the MacOS.

Piper Computer Services
Port Orchard
http://macpcs.com
Apple Macintosh software and hardware support, troubleshooting, configuration, and web site design. Phone support available!

SkyTouch Communications
Bellevue
206-643-4653
http://www.skytouch.com/
SkyTouch Communications (formerly Raven Systems)
was founded in 1992 with the explicit purpose of developing innovative, high-quality, personal computer software solutions.

Wisconson

Connecting Point Computer Center
Green Bay
920-435-2335
http://www.cccp.com
Offerings include sales, network connectivity, full rental dept., training and the largest service dept. in Northeast, Wisconsin. Desktop Publishing/Multimedia specialist in-house, 3 authorized service technicians, 3 Mac trainers, and a Chancery Authorized Reseller featuring Mac School software.

Michael D. Conners
A Macintosh and Technology Professional
Sun Prairie
608-575-7297
Michael Conners is a Macintosh and technology professional specializing in consulting, training and database design. Located in Sun Prairie, WI, I can be reached at 608-575-7297.

MacClinic
Plover
715-345-2806
www.macclinic.net
MacClinic offers: 10 years Macintosh experience. Apple Product Professional on staff. System analysis, using information methodologies. Consulting services, upgrades and repair. Superior attention to detail.

MacPower Consulting
Eau Claire
715-552-1753
Private Macintosh consultant specializing in: home/small business design & setup, internet access & connectivity, and hardware & software troubleshooting.

NRG Software, LLC.
Milwaukee
414-545-0353
http://www.nrgsoft.com
Custom Mac Programming, scripting, java development, database work, etc.

Third Millennium Design, Inc (3MD)
Milwaukee
414-221-1941
http://www.3md.com
Started in 1992, 3MD services the design/production industry. 3MD an Apple Authorized Service Center and Reseller, has four areas of specialization, Sales/service, design/production, training, and Internet services. We are experts in cross-platform integration & production.

Canada

Blue Chip Consulting Inc.
Toronto
416-456-1555
Blue Chip Consulting Inc. was established in 1990 to provide database and office automation solutions to small to large size companies. We provide customized software as well as consulting services to these groups along with "Executive Training" for those that wish one-on-one training in only the areas that they are concerned.

Coresolutions
Toronto
416-410-8649
At CoreSolutions Development Inc. we specialize in the development of workgroup solutions using FileMaker Pro™. Our mission is 'to empower our clients with the tools and knowledge to effectively implement and utilize database technology so they may become more competitive within their markets.' Our services include database design and development, training, web publishing and database publishing for Windows and Macintosh platforms.

Green Solutions for Macintosh
Toronto
416-928-2125
http://www.greenapple.on.ca
A Toronto based consulting firm specializing in Macintosh training, diagnostics, and custom business solutions including internet access and web page design.

Can't find a consultant?

If you can't find a consultant in your area, be sure to search our consultant's database at www.macdirectory.com/pages/Services.html and access over 5,000 Macintosh consultants worldwide.

MacDirectory Business Directory

Welcome to MacDirectory Super Buyer's Guide

We have created this section to help you find the products and services you need for your Macintosh and business. A complete index section is available on page 191. If you can't find what you are looking for, don't panic! Simply go to www.macdirectory.com and access the largest Macintosh product and service database. Over 1 million solutions are available including job openings, daily news, free technical support, reviews, hot deals and new product information.

ACCELERATORS

ADAPTEC, INC., WWW.ADAPTEC.COM **408/945-8600**
ATI TECHNOLOGIES INC., WWW.ATITECH.COM **905/882-2600**
CORECO, WWW.CORECO.COM 514/333-1301
DAYSTAR DIGITAL, INC., WWW.DAYSTAR.COM 770/967-2077
FORMAC ELEKTRONIK GMBH, WWW.FORMAC.COM ..... +49 3379-340-0
GRIFFIN TECHNOLOGY, INC., WWW.GRIFFINTECHNOLOGY.COM **615/255-0990**
INTEGRATED COMPUTER ENGINES, INC., WWW.ICED.COM 781/768-2300
MICROMAC TECHNOLOGY, INC., WWW.MICROMAC.COM 949/362-1000
NEWER TECHNOLOGY, INC., WWW.NEWERTECH.COM 316/943-0222
POWERLOGIX, WWW.POWERLOGIX.COM 512/795-2978
SONNET TECHNOLOGIES, WWW.SONNETTECH.COM ..... **.800-786-6260**

SONNET CARDS OFFER SUPERIOR VALUE. THEY ARE EASY TO INSTALL, RELIABLE, AND PRICED WELL BELOW A NEW COMPUTER. ALL SONNET UPGRADES ARE CONSERVATIVELY BUILT TO RUN WELL WITHIN ENGINEERING DESIGN SPECIFICATIONS FOR SPEED, TEMPERATURE, AND POWER CONSUMPTION. THIS IS ONE OF THE REASONS WHY SONNET IS ABLE TO OFFER AN INDUSTRY-LEADING, THREE-YEAR MANUFACTURER'S WARRANTY.

SKY4 STUDIOS, WWW.SKY4STUDIOS.BE/ ..... +32 3 471 19 98
TECHWORKS , WWW.TECHWORKS.COM **800/688-7466**
TOTAL IMPACT, WWW.TOTALIMPACT.COM 805/987-8704
TRANS INTERNATIONAL, WWW.TRANSINTL.COM 714-634-1583
VILLAGE TRONIC, WWW.VILLAGETRONIC.COM ..... +49 5066 7013 0
XLR-8 BY INTEREX, WWW.INTEREXINC.COM 316/636-5544
YARC SYSTEMS CORPORATION, WWW.YARC.COM 805/499-9444

ACCESSORIES

BELKIN, WWW.BELKIN.COM ..... **.800/223-5546**
BOOKWARES, WWW.BOOKWARES.COM 415/339 8900
CO-DU-CO COMPUTER DUST COVERS, WWW.CO-DU-CO.COM 414/476-1584
CONTOUR DESIGN, INC., WWW.CONTOURDESIGN.COM ..... **.800/462-6678**
DR. BOTT, WWW.DRBOTT.COM ..... **.503-452-8101**
GRIFFIN TECHNOLOGY, WWW.GRIFFINTECHNOLOGY.COM .... **.615/255-0990**
JOSEPH C LEE COMPANY, WWW.IMACRESETBUTTON.COM 559/994-0155
LAIDBACK WE R INC., WWW.LAPTOP-LAIDBACK.COM 902/226-3092
MADSONLINE, WWW.MADSONLINE.COM 415/339-8900
TARGUS, INC., WWW.TARGUS.COM 714/523-5429
TENBA QUALITY CASES LTD., WWW.TENBA.COM 212/966-1013
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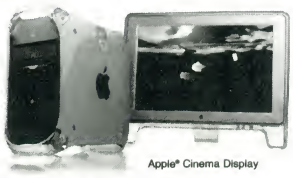
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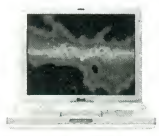
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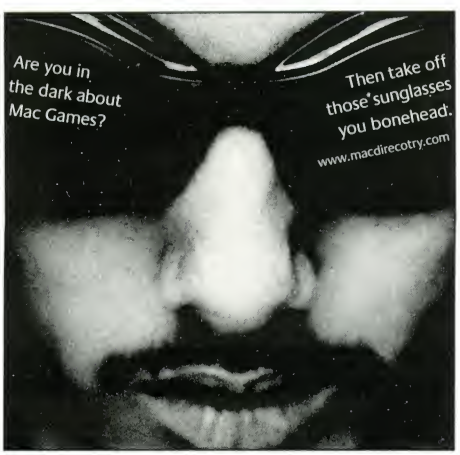

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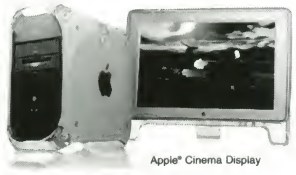
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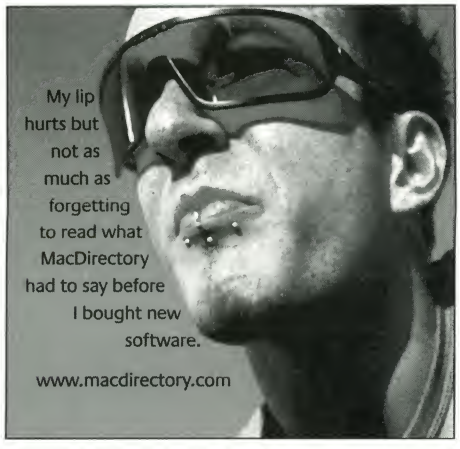

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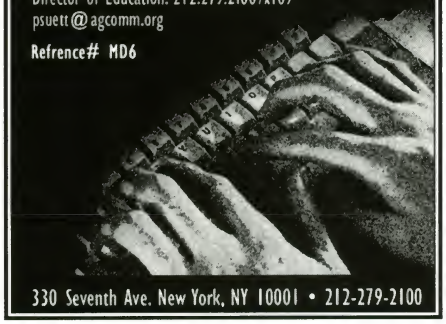

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HYPERACTIVE SOFTWARE, WWW.HYPERACTIVESW.COM ... 612/724-1596
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How to find a prima donna without working with one.

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N°9

review 9 > GCC Elite 21

BY JEFFREY CHOISIR

GCC PRINTERS HAS RECENTLY LAUNCHED A NEW LASER PRINTER LINE – THE ELITE 21 SERIES.

This new family of products from the Bedford, Massachusetts-based Company offers a high-speed 21 page per minute print engine, fast *PowerPC* controller and true *1200 x 1200* dpi resolution. The series consists of three models: The Elite *21N*, the Elite *21DN* (which features a standard internal duplex unit), and the top-of-the-line Elite *21SE* (which features the internal duplex unit, a 4GB internal hard drive, and a total of 64MB of RAM). Each model ships with standard networking capabilities including *10/100* BaseT Ethernet and direct support for EtherTalk, TCP/IP and IPX/SPX networks. Included driver software allows for ease of use with Macintosh, Windows 95/98, 2000, NT 4.0 and Unix systems.

Founded in 1981, GCC Printers was initially a major player in the consumer electronics explosion, creating and enhancing such games as "*Ms. Pac Man*" and generating over $800 million in revenue for Atari and Bally Manufacturing. By 1984, the company became a pioneer in the development of internal hardware and peripherals for the new Apple Macintosh environment, including the internal Macintosh hard disk drive, personal laser printer, portable printer, and sub-$1000 laser printer. GCC also lead the way in developing Internet addressable printer technology allowing Web browser management for network printers. Today, GCC Printers manufactures high-speed, high quality laser printers, providing businesses advanced printing capabilities in systems designed for use across all current operating platforms.

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Pricing for the Elite 21 Series starts at just $1299. Call 1.800.422.7777 or visit www.gccprinters.com for further information.

MacDirectory
★★★★1/2

I'd heard a lot of buzz about ATI's new RADEON™ MAC EDITION, its stunning 3D acceleration, 32MB DDR graphics memory and flexible display support. I wondered, would this graphics accelerator really make designing easier and faster? Wow! It didn't take long to find out. RADEON™ MAC EDITION rendered the most complex 3D elements faster than I'd ever seen; even when working in 32-bit true color! My projects literally sprang to life with incredible detail and realism. But RADEON™ MAC EDITION isn't all work and no play. The 3D gaming – on my lunch break of course, is just as incredible with noticeably faster frame rates. With the fastest rendering speeds available, animations are fluid and life-like. Plus, I can hook up a TV for a big-screen experience. 3D rendering performance, awesome gaming, and display flexibility make RADEON™ MAC EDITION one wicked card!

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RADEON™ MAC EDITION is "...our top pick in 3-D graphics cards."

-MacWorld.com, January 24, 2001

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Macworld

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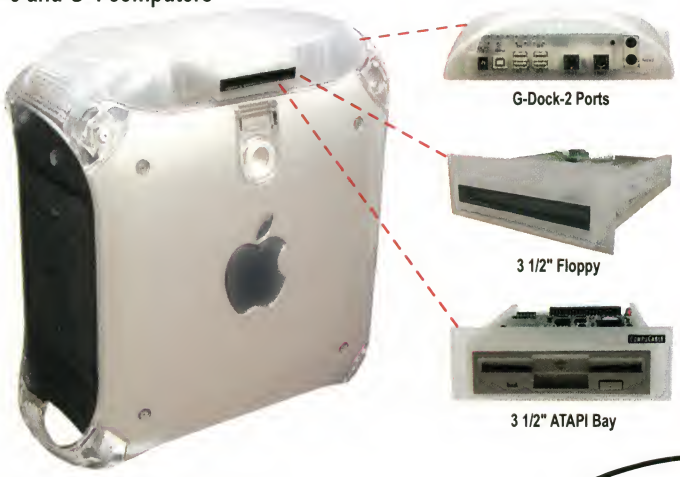

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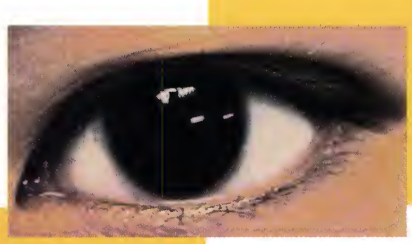

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review 10 > FreeHand 10

BY SCOTT DEWBRE

FREEHAND 10 IS READY TO FOLLOW CUTTING-EDGE MAC USERS INTO THE LAND OF OS X. BETTER STILL, IT SPORTS A LEVEL OF INTEGRATION BETWEEN MACROMEDIA APPLICATIONS THAT COULD SIGNIFICANTLY INCREASE PRODUCTIVITY.

New Features

With FreeHand 10, Macromedia is moving closer to an integration of its major products similar to that seen in the **Microsoft Office** line. While invoking the Microsoft name may scare some readers, users of Macromedia products stand to receive some serious benefits. A quick look at a few of FreeHands new features shows why:

Common Macromedia User Interface FreeHand has been revamped to have the same look and feel as other Macromedia products like Flash and Fireworks. Shortcuts, toolbars and customizable features are being standardized to make it easier for users to move between products.

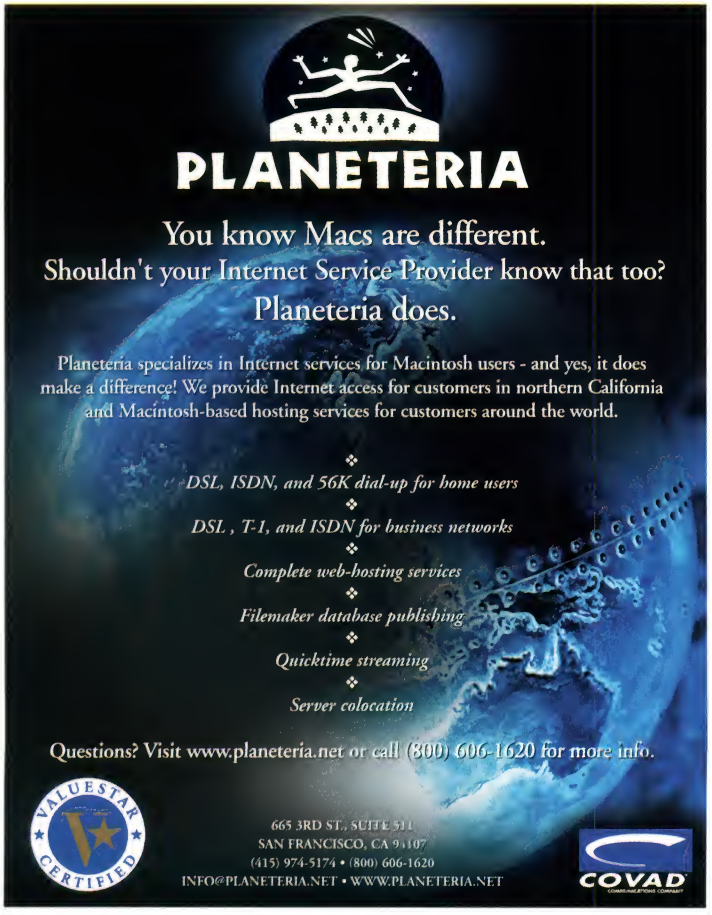
Customizable Master Pages FreeHand users can create customizable master pages, which allows rapid formatting of large projects.

Print Area Feature Users can print a portion of a FreeHand drawing or even the entire workspace for sharing with a workgroup or client reviews.

Improved Tools Contour gradients, symbol-based brush and spray strokes, a Macromedia-standard pen tool and more.

The people who should be cheering the loudest about FreeHand 10 are those who use both Flash and FreeHand. Their lives just got a lot easier thanks to some serious integration of Flash functionality into FreeHand.

For instance, when exporting to Flash, background graphics and illustrations will now be saved once and used across multiple pages in FreeHand, speeding conversion time and decreasing the file size of Flash movies. Better still, FreeHand now has a Flash navigation panel, which allows users to apply Flash actions, assign URLs and hotlinks to graphic elements or text, and test the actions and links without ever leaving FreeHand.



Mac OS Integration

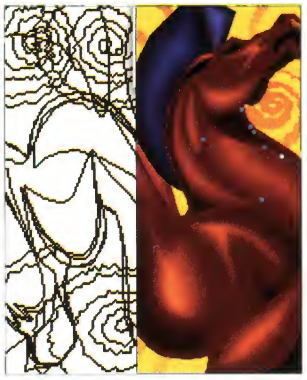
Speaking of Flash, the new version of **FreeHand/Flash Studio** will contain Flash 5. While **FreeHand 10** will run under **OS X**, **Flash 5** will not. This means that OS X users will have to switch to the classic environment to run Flash 5 on their machines. On another OS related note, the FreeHand 10 CD contains both the OS X and OS 9 versions. OS 9 users will not have to take the financial hit of ordering the same software twice should they later switch to OS X.

The Objective

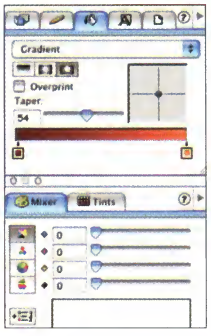
This latest update to FreeHand shows how much times have changed. When FreeHand was introduced in 1988, it was primarily intended for producing high-quality print graphics. With version 10, FreeHand is essentially a Web-first, print-later application. The same print tools remain in FreeHand as before, but are emphasized less. According to Macromedia, this is simply a matter of following the trends. According to their research, 70 to 80 percent of traditional print designers are also becoming Web designers.

Macromedia wants to help traditional publishers become multi-publishing professionals who can create designs that

can be reused across multiple mediums. That requires a very powerful application,
and FreeHand shows both the good and bad aspects of powerful applications. In fact, if there is a drawback to FreeHand, it's in the sheer number of toolbars, palettes, and windows users must deal with. There is a price to be paid for all that precision and control, after all.



When you first launch FreeHand 10, no less than three toolbars and three palettes confront you.
For master graphic artists, this is no big deal. But for an amateur, the first glimpse of FreeHand's interface is a lot like looking at the instrument panel of a 747.
But, newbies take heart, FreeHand is the kind of complete graphics package that you almost never outgrow. As your skills improve, you discover how to master more and more of FreeHand's functionality.



Value
FreeHand 10 is priced at $399 for the full version or $129 for an upgrade, which puts it in line with its competitors, **Adobe Illustrator, Corel Painter and Corel Draw**. Freehand is worth it for people who need to produce clean, high-quality graphics for Web or print, and people who use other Macromedia products, particularly Flash. In fact, people who are already using FreeHand and Flash on a daily basis should get this ASAP for its time-saving aspects.
Pros: Improved integration with other Macromedia applications, OS X ready, extremely powerful graphics tools, priced equal to its competition

Cons: Daunting for beginners and complicated interface

System Requirements
MacOS: OS 8.6 or later
Application: 32 MB of available RAM (64 MB RAM recommended)
Disk Space: 70 MB of free hard disk space

Price: $399 > Upgrade: $129
FreeHand/Flash Studio: $599
From: Macromedia
www.macromedia.com

MacDirectory
★★★★1/2

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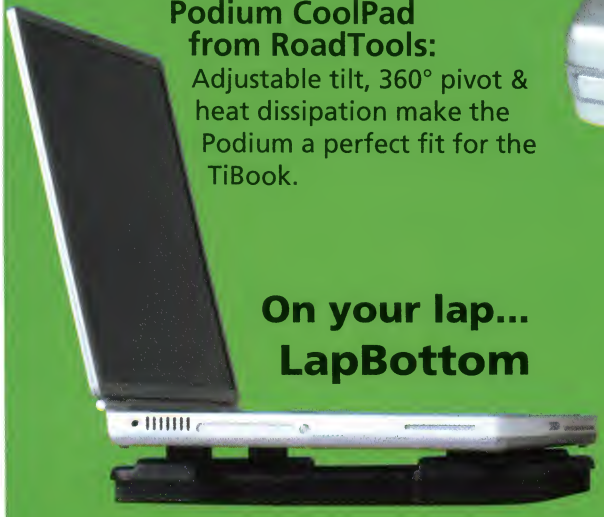

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review 11 > Z Brush 1.2

BY DAN MOUGHAMIAN

IN NOVEMBER OF 1999, A SMALL SOFTWARE COMPANY CALLED PIXOLOGIC INTRODUCED Z BRUSH, AN INTERACTIVE 3-D PAINT PROGRAM IN A CLASS BY ITSELF. VERSION 1.2 OF Z BRUSH BUILDS ON THE PROGRAM'S SUCCESS.

Traditionally, professional 3-D applications allow users to create any kind of 3-D world they desire – but at a cost. With the advent of Z Brush, Pixologic has taken the first step toward making 3-D illustration more approachable.

Pixol-perfect...

The heart of their new approach revolves around the use of *"pixols"* or smart-pixels to describe an object's color and size, as well as its depth and material characteristics. Rather than forcing users to proceed through several distinct steps to create and render an object, Z Brush gives users the ability to paint in real-time with color, texture and depth. Just as oil paints mix and mesh with each other on canvas, pixols interact with their *"environment"* and creates realistic 3-D images on the fly. Z Brush remembers each brush stroke and its properties. As you paint atop or through previous strokes, the colors, materials and transparencies interact just as they do with physical materials and light. This alone makes Z Brush worth a look for experienced 3-D artists.

...Only One Problem

While Z Brush does make it easier to experiment with 3-D illustration, the interface is not exactly intuitive for the average user. I understand the desire to make the 3-D process more intuitive, but Pixologic has created yet another proprietary interface. Many Mac users will no doubt find Pixologic intimidating until they've used the application for a while. I'm not sure Pixologic understands how strongly Mac users feel about the familiar Desktop interface. Indeed, Apple itself had to struggle with this issue as it designed and refined **OS X's** new **GUI**.

So what makes me say all this? For starters, there are no standard menus other than File and Help, which contain all of two commands: Quit and Balloon Help. This was a bit of a shock to say the least. There are also very few keyboard shortcuts, and no means of defining them either. The only two I found right away were Undo and Redo *(admittedly the two most important shortcuts for an application of this kind)*. In short, Pixologic aimed for complete icon-driven functionality and customization at the expense of familiarity.

In fact, Z Brush has so many different functions and custom settings that it's hard to know how they interact and where to find them at any given moment. Just how many bells, whistles and buzzers are there? It requires a whopping 19 floating palettes to house them all.

While not all palettes need be displayed at once, each has its own hierarchy of sub-menus – some capable of extending down three or four levels. Thus even on a 21-inch screen, it is impossible to open more than four or five palettes at any one time. The simple fact is, in default mode, every palette and function looks like every other palette and function. So much so that all the text, icons and buttons are one gray-metallic blur.

Thankfully, it is possible to create a custom grouping of one's most frequently used brushes, shapes, functions and modifiers. These can be locked together horizontally or vertically in the empty space around your document. Each grouping can also be assigned its own color so you see at a glance where each functional grouping is located. Users can set up the document space so only the document and your custom palette are visible.

The Tool Set

Z Brush's tool set is a mixture of the ingenious and the obscure. While it is simple to assign shape, color and texture to a given paint brush - *I felt like a kid with finger paint at times* - it can be frustrating to complete other common tasks. Because Z Brush is constantly rendering the scene as you change it, something as simple as going back to alter a primitive object's shape or location is not simple at all. In fact, once you've created a new object you cannot alter earlier ones in any fashion, you can only undo them. Brush strokes are not editable at any time once they've been applied. This needs to change. A history function is needed so that changes to previous actions can easily be made. Finally, if you want to start over, there are no *"Clear All"* or *"New Document"* commands. There definitely should be.

The point is not that Z Brush cannot accomplish what you ask, or even that the tools are difficult to use. Rather, the problem is it is too difficult to figure out which tools to use and in what order. Even if you read the documentation, there's no way to remember it all as you use the program. In short, the user ends up doing exactly what Pixologic hoped they wouldn't - focusing on the interface rather than painting.

Another area for improvement is the interactive walk-through that comes with the application. It simply isn't comprehensive enough. The user documentation is fairly thorough, but spread across several PDF documents; an online help system is needed. The pop-up text and PDF files are not sufficient to gain a solid understanding of this application and how it works. Detailed information needs to be available with a couple clicks of the mouse, and without leaving Z Brush.

The Bottom Line

While I was impressed with the quality of images that can be created with Z Brush - see the artist's gallery at *www.pixologic.com* - the interface needs refinement. It's still a very young product, but Z Brush simply does not behave like a Macintosh application. In the hands of an experienced user, Z Brush is a 3-D artist's dream. However, in the hands of the average user, it may be more frustrating than anything else. Hopefully the next release will address the GUI's shortcomings – that's the only thing stopping Z Brush from becoming the de-facto standard in 3-D illustration

System Requirements

MacOS: System 8.1 or later
Application: 128MB RAM *(can be Virtual Memory)* > Price: $292.50 *(for a limited time)*
MSRP: $585.00 > From: Pixologic > *www.pixologic.com*

MacDirectory ★★★1/2

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review 12 > Quark Wrapture 1.5

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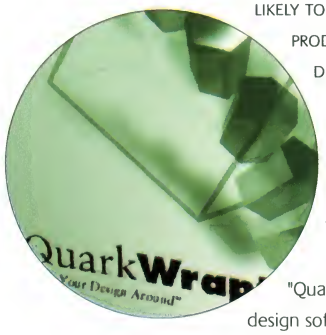


"Quark has been developing layout and design software for twenty years, and when we started looking into it, we discovered that there weren't a lot of programs out there to streamline the design process for the packaging industry," said Jürgen Kurz, director of product management. "QuarkWrapture seemed like a logical solution. It lets designers circulate 3-D package proofs electronically, saving both time and money — and since it's based on QuarkXPress technology, it feels familiar."

QuarkWrapture fuses a CAD structure to a graphic design, creating a virtual package in a single file, and generates a 3-D rendering of that package at any time. Electronic mockups can be delivered in popular file formats, thereby eliminating the need for preliminary physical mockups.

Mockups created in QuarkWrapture can be viewed in a Web browser, cutting delivery costs for remote client approval and facilitating same- day proof turnaround. Changes can be viewed instantaneously, ideas can be exchanged quickly and easily, and costly mistakes can be caught early in the design process.

"The integration of QuarkWrapture into our workflow has been seamless, and we're always finding more ways to use it," said Garry Ferguson, senior graphic designer at The Learning Company, UK. "Our customers love receiving their package designs electronically, which saves everyone time. Visualizations that used to take an hour to mock up are now done in five minutes in QuarkWrapture, and our customers can see a complete representation of the package before it's even finished."

In addition to speeding the design process and cutting costs, QuarkWrapture also facilitates the creation of brand resources. Once a package design is complete, 3-D renderings created in QuarkWrapture can be used for marketing purposes including advertising, virtual product presentations, and electronic portfolios. Additionally, Quark develops an enterprise asset management system, Quark Digital Media System (QuarkDMS), which can be used to store, manage, and distribute brand resources easily and securely.

This month, Quark plans to release the first upgrade to the packaging software, which first hit the market in November. QuarkWrapture 1.5 includes several new and enhanced features for greater package visualization and export capabilities. Now, QuarkWrapture meets the needs of even more packaging professionals, including those who design labels and shrink-wrap for bottles and cans, as well as point of purchase displays.

A material manager and variable rendering attributes give users greater control over specific elements of the virtual 3-D mockup, and material attributes such as finish, texture, and thickness can be specified in QuarkWrapture 1.5. Users can also change lighting intensities, camera focal lengths, and background colors in the Mockup palette for more realistic package previews.

In the new version, multiple pieces can be rendered as a single scene in the Mockup palette, and each piece can be individually selected and repositioned.

Additional product enhancements include Macromedia Flash and TIFF export, high-resolution graphic support, and improved guide support for more efficient control over structural elements.

"The multiple piece and additional export capabilities will expand the functionality of QuarkWrapture in our workflow even further, " said Ferguson. "It's great to hear of an upgrade with this many new features so soon."

System Requirements
Processor: 200 MHz processor or higher
MacOS: System 8.1
Application: 24 MB of available RAM *(with virtual memory on)*
Disk Space: 70 MB of available hard-disk space

Price: $6,999
From: Quark
www.quark.com

MacDirectory
★★★★1/2

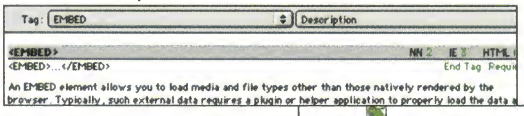
review 13 > DreamWeaver 4.0

BY DAVID DUDEK

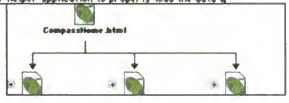
MACROMEDIA HAS UPGRADED ITS DREAMWEAVER VERSION TO THE BEST ONE YET. THIS PROGRAM BOASTS MANY NEW FEATURES, INCLUDING AN HTML CODE REFERENCE, LAYOUT/DESIGN VIEW ALONGSIDE THE CODE VIEW, SITE REPORTING AND MORE. THE PROGRAM REQUIRES A SMALL CHUNK OF HARD DRIVE SPACE UPON INSTALLATION, BUT ONCE INSTALLED IT RUNS SMOOTHLY. DREAMWEAVER IS BETTER THAN COMPETITING PROGRAMS - ADOBE GOLIVE AND NETFUSION.

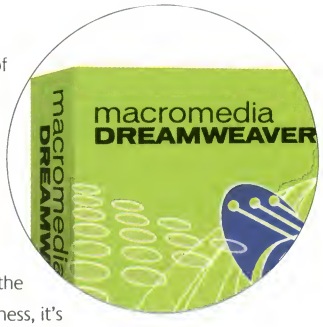
New Features

Here are some of the new features: OReillys HTML Reference has a comprehensive list of tags and their uses. The code/design window allow you to see exactly what the page will look like, while editing the code simultaneously.



Many new features allow the user to control all aspects of HTML coding and Web page creation. The object palette holds access to the frame layout and table creation buttons along with objects, active-x and image placements, DHTML and more.





To give a more in-depth explanation of Dreamweavers editing strengths, let's review at each addition in detail. To design the page layout, you can use a graphic interface *(Design View)*, or edit the code directly in the integrated text editor. If you want the control of hand coding without all of the tedious mess, it's possible to the split code and design views.

Another nice features is the quick-tag editor, which allows you to edit tags directly in the graphical design view. Dreamweaver is the first of its kind to have a Check Page for Accessibility which compares a design to the W3C guidelines on HTML,

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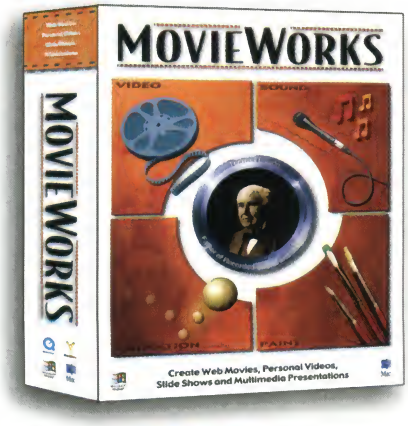

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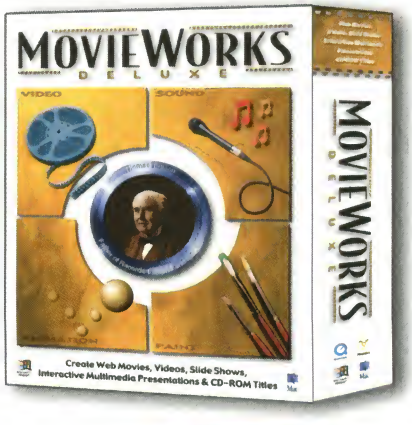

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CSS and other accessibility standards. It appears the Dreamweaver folks have taken to Adobe's use of a History panel, and have included it in Dreamweaver. The panel allows you to review, modify, undo or repeat changes.

If you code in Javascript and are having a tough time getting your code to work, Dreamweaver's JavaScript Debugger can help. Use breakpoints and watch variables initialize and update as you step through the Javascript.

Other Advantages

Designers can create a template for a Web site and then distribute it to the folks editing the content. Just give them the Web site and they can edit the content in the design view, without compromising your design of the web page. This allows several people to work on a site at the same time. If you are on a team and want to pass design notes along, Dreamweaver has that too. It keeps track of comments and the status of pages in a single location for each individual file you want to discuss.

For those who are new to editing and designing Web pages, Dreamweaver has easy-to-use Microsoft Office Integration. If you paste Word98 or Word2000 text, you can use the Clean Up World HTML command to remove all of the garbage left behind.

Finally, Dreamweaver's most impressive function is its site management capabilities. You can synchronize local and remote version of the Web site easily. Additionally, if you find that you use some menu commands more than others, the menu bar in Dreamweaver is fully customizable.

System Requirements

MacOS: System 8.6 or 9.x
Application: 32 MB of available RAM
Disk Space: 20 MB of available hard-disk space

Price: $299(full version)
Upgrade: $149
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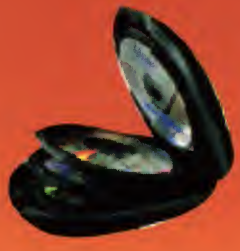

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review 14 > Corel KnockOut 1.5

BY JOE CILLO

COREL KNOCKOUT 1.5 IS A ONE TRICK PONY — BUT, OH MY, WHAT A TRICK! EVER HAD TO CREATE AN IMAGE COMPOSITE AND FOUND THE PERFECT PICTURE TO BRING IT ALL TOGETHER, BUT THE IMAGE COMES WITH THE WRONG BACKGROUND? SO YOU START THE PROCESS OF TRYING TO "LIFT" THE PICTURE FROM THE BACKGROUND ONLY TO DISCOVER HOW TOUGH IT IS TO DO RIGHT.

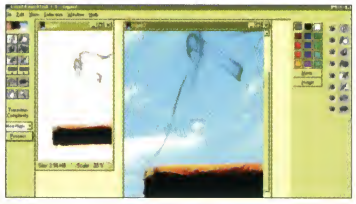
Overview

This process, called *"masking,"* is where Corel KnockOut 1.5 enters the picture. It does the job better than just about any other approach. If you do any amount of masking, KnockOut should be part of your toolkit.

Professionals like stock photography agencies use KnockOut to separate their photograph images into layers, thereby extending the life of their photos and also providing more creative flexibility. Advertising agencies, by speeding up their comp and layout work, provide clients more creative concepts at a lower cost.

What is KnockOut?

Masking is one of the most time-consuming tasks in digital imaging and compositing. While ordinary objects with sharp edges can be easily masked, images such as fine wisps of hair or blurred or out-of-focus edges can be difficult. Properly masking complex objects deters even the most seasoned designers because it's so time consuming.



Designed specifically for professional, high-quality masking, KnockOut helps designers easily and precisely mask difficult images with fine details such as smoke, motion

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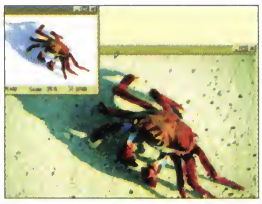
blur and shadows. Used in conjunction with image editing software like PhotoShop, users can create seamless digital photo composites with accuracy and realism.

Using the program



Using KnockOut is easy. Select objects for masking out of a digital photo by drawing selection lines defining the object's inner and outer boundaries. Then save/export the image.

A variety of tools enable KnockOut to produce the soft transitions of foreground edges while removing all traces of the visible background in that transition. When this processed foreground is combined with a new background, the transitions have the same transparency as the original.

The user interface is intuitive. Everyday users will be up and running in 10 minutes using the basic tools. Professional designers/users using the program's more advanced features will need additional time to become facile with these capabilities.

Caveats

KnockOut requires five times the memory size as the size of the image being worked on. This is because it generates the mask as an alpha channel and stores the last two versions of the image and the last two versions of the alpha channel, all in RAM. A sample calculation is: Image size = 20 MB x 5 = 100 MB RAM required. Large images *(50MB+)* will require larger RAM setups, so plan accordingly. No CMYK KnockOut works with RGB space Any CMYK images will have to be converted to RGB. Again, be aware.

System Requirements

MacOS: System 7.6.1
Application: 2 MB RAM plus 5X image size

Price: $295
From: Corel
www.corel.com/corelknockout

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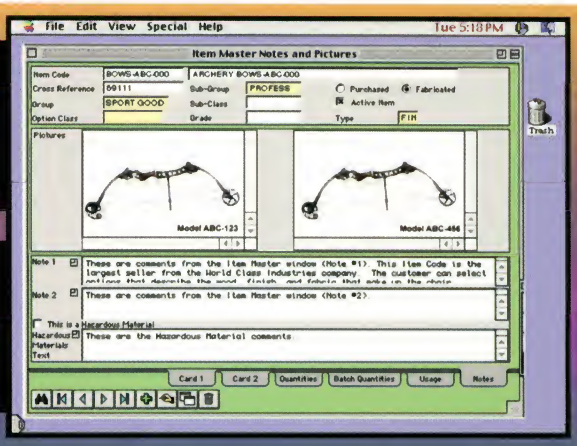

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Digital Homebrew

BY SCOTT HICKEY > IMAGES BY STEPHEN STICKLER

So you want to be a rock and roll star?

A few things have changed since the **Byrds** first asked that question in 1967, but not the answer.

People still fantasize about writing a number-one song, but that squeaky four-track recorder in the basement is being replaced by a humming hard drive. Cheaper technology has swung the studio door open a little wider. Amateur audiophiles can now afford to build their own home recording studio.

It's not just amateurs either, established musicians are making music at home too. The salad days for big recording studios are gone. The new breed of studio cropping up is smaller, faster, better and digital.

As a studio engineer and programmer for 15 years, **Rae DiLeo** has watched the evolution from behind a mixing board. He studied guitar at *Berkley* in *Boston* in the early '80s. After graduating, he migrated to studio engineering and programming because it allowed him to record his band during studio down time. DiLeo's band is gone now, but he still calls the studio home.

His career riding the faders began recording seminal hip-hop acts like **Grandmaster Flash** and **Curtis Blow**.

"Hip-hop was just getting started and all the engineers at the studio where I worked wanted to do rock records, not hip-hop. I took all the rap acts I could get, because it gave me a chance to learn about new technology. Even then, I knew computers were the tool of the future for recording studios," he says with a clipped Bronx accent.

DiLeo's instincts proved right. This spring he was in *Chicago* at *Abyssinian Son Studios* programming and engineering Filter's third album, tentatively titled "*Amalgamutt*." Built by the band's leader **Richard Patrick**, the studio is tricked-out with the latest digital gear. It's too pricey for most weekend warrior musicians, but the core components aren't. It's not difficult or expensive, DiLeo says, to build a respectable, professional-sounding studio in your home.

Home-Studio Recipe

DiLeo suggests this rock star starter kit, priced less than $5,000:

Computer: Apple G4 (*466 MHz or higher*) - $1,699. The industry line is 'Macs are for music,' and who are we to argue?

Software: *Pro Tools Digi 001* - $799. Digidesign's entry-level digital studio is an all-in-one package (*hardware and software included*), and a great place to get your feet wet. Once you get good at recording, editing and mixing with Pro Tools, the software can easily be upgraded. Pro Tools is the most popular digital-audio recording software, but not the only choice. Mark of the *Unicorn*, *Cubase* and *Logic Audio* also offer recording software.

Hardware: Mic – $300-500. Buying a good microphone is one of the most important steps. Shop around to find a mic that best fits your needs. If you want to record your voice or an acoustic guitar, the *Rode NT-2 mic*, which goes for around $400, is a solid choice. If you need to mic live drums, Shure offers a range of mics for less than $100.

Mic pre-amp – $600-$800. Run the microphone through a pre-amp to boost the signal before it reaches the computer. *PreSonus* and *Focusrite* both make fine microphone pre-amps.

Guitar pre-amp – Less than $1,000. If you like a loose sound, you can mic a standard guitar amplifier, run it through a mic pre-amp and patch that into your computer. If you prefer a tighter sound, it's best to run your guitar into a guitar pre-amp and then into the computer. Marshall offers the *JMP-1*, a *MIDI* compatible guitar pre-amp that delivers the classic *Marshall* sound for less than $800.

Once you get the basics, it's easy to run up a credit card buying all manner of sonic accouterments. There are more than 100 plug-ins available for *Pro Tool plug-ins*. One example - *Amp Farm* - puts some serious sounds at your disposal for less than $600. The amplifier emulation software from Line 6 recreates the sounds from a host of guitar and bass amplifiers, including vintage amps by *Vox and Fender*, as well as newer amps by *Mesa Boogie*. For a touch of authenticity, Amp Farm uses replicas of each amplifier's control panel for its graphic user-interface.

Comparing the sound of the original hardware to the software emulations, DiLeo says he can't tell an appreciable difference. The software emulations give you the sound you're looking for, without hogging studio real estate.

"Instead of going out and buying a room full of hardware – compressors, amplifiers and effects racks - Pro Tools lets you have the same sounds using plugs-ins. Before, if you wanted to use a compressor on more than one track, you needed separate compressors. You don't need to fill a room with hardware now, because all you need is in the computer."

Don't Look Back

It's been five years since DiLeo last used analog tape to record, and he doesn't miss it. Recording digitally, he says, is more fun because it has taken his focus off the mechanics of recording and put it on to the creative process.

"The technology gives you the freedom to experiment with things you wouldn't have before. That's how you stumble across some of coolest things."

Patrick says his studio allows him to turn his ideas into music quickly without getting bogged down worrying about technical constraints.

"If I were to sit with the computer, I think I would get a little overwhelmed. Rae is my computer interface. I tell him what sound I'm going for, and he makes it happen. This technology has made it easy for someone like me who likes to work off the cuff. I do my best work when I write stuff and get it done quickly."

When it comes to editing music, digital is clearly easier and more accurate than analog. Before Pro Tools, DiLeo says editing was a tense process that required a skilled hand and a touch of luck to cut and paste tape together properly. If either failed, the tape wound up in the trash.

"Say I was recording drums and the snare was off a bit. It used to be that I'd go to the multi-track and splice the tape to fix it. That could take 20 minutes. Now, I just cut and paste on the screen and I'm done in 10 seconds. If I screw up, I didn't ruin the take, because I can undo it."

When asked to name some drawbacks of digital recording, DiLeo is stumped.

"I never really thought of it like that because you get so much by going digital. I guess you could say it's more work in some ways. You have so many options in front of you, you end up trying more things and experimenting. But having options is not really a disadvantage."

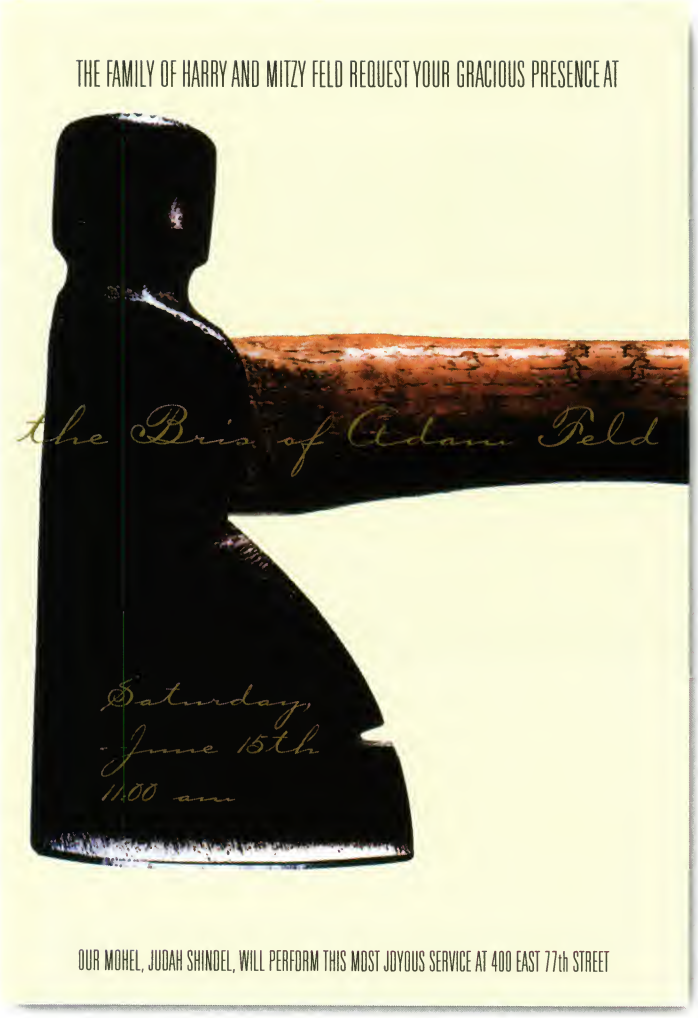
Open Doors

Digital technology has changed the art of making music in two ways. First, it's cheaper than ever to record studio-quality music. Secondly, it's shifted the focus away from skilled musicianship to boundless creativity.

You don't have to be a prodigy to sound good. Drum loops are a saving grace for the rhythmically-disinclined. Guitar effects make a pawn shop guitar sound like the voice of God. And harmonizes add girth to even the thinnest voices.

The studio is more open, but that doesn't mean anyone can plop down behind the keyboard and expect great art to come screaming out of their speakers. You can't fake the funk, Patrick says.

"If you suck, you suck. You have to put in your time as a thinker and individualist. A monkey is not going to write Romeo and Juliet with a state-of-the-art word processor, but can you imagine what Jimi Hendrix could do in a modern studio?" ✠



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Barenaked Ladies

BY SCOTT HICKEY > IMAGES BY ANTHONY STAINT JAMES

You can't trust Ed Robertson.

TAKE YOUR EYES OFF THE **BARENAKED LADIES** SINGER AND GUITARIST, AND HE'S EITHER CORRUPTING THE APPLE MENU OF A NEW TITANIUM POWERBOOK WITH PERVERSELY-TITLED FOLDERS LIKE "STUFFED ASS KEBOBS," OR NONCHALANTLY TRYING TO MAKE OFF WITH THE LAPTOP UNDER HIS ARM.

Despite a dirty mind and sticky fingers, **Ed Robertson** redeems himself with a sharp eye for detail. He was quick to notice at a recent photo shoot that Apple has inverted the Powerbook's logo. When the newest laptop is open, the logo is right side up instead of upside down like on the G3.

"I'm glad to see they fixed that, but I think they should go further. Apple should make the logo like a compass so it's always right-side up no matter what."

When someone offers to send the suggestion to Apple CEO **Steve Jobs**, Robertson barks in mock anger, "It's my idea, you stay the fuck away from it!"

Robertson and fellow Barenaked Ladies singer and guitarist **Steven Page** are the band's resident rabid Apple fans. In Toronto, both attended the same gifted classes where they learned on an *Apple II Plus*. They were hooked.

"I dabbled a bit with the Vic 20 when I was younger," Page says as if confessing a mortal sin.

"When it was time to get a real computer, my Dad went out and bought a *Mac SE*. I've always had Macs. I like the fact that I didn't have to learn DOS to write an essay."

All grown up now, Page has a *G4* and an *iMac* at home. When the band is on tour, which is most of the time, Page takes his 'custom' *G3 Powerbook* along.

"My two-year old son colored in the Apple logo with a black marker. There's a few different Powerbooks in the band, but I always know which one is mine thanks to him."

Radio Kings and Road Dogs

Roberston, Page, bassist **Jim Creegan**, keyboardist **Kevin Hearn** and drummer **Tyler Stewart** released an independent Ep in 1990. The songs helped get the quintet signed to Sire Records, which released "*Gordon*" in 1990. Canadian audiences quickly embraced the band's mix of humor, fidgety energy and tender pensiveness. The album

sold two million copies and earned the band Group of the Year honors later that year at the *Juno Awards* - Canada's equivalent to the *Grammys*.

Success in America came slower, but relentless touring helped spread the word about the band's ebullient performances and proclivity for catchy songs.

On stage, the Barenaked Ladies play it loose and cheery. Fans say it's hard to leave a show in a bad mood. Not only do they entertain their fans, the band likes to entertain itself. To keep it interesting, the band covers anyone from **Prince** to the **Beastie Boys**, or will make up a song on the spot.

It's a habit Page and Robertson started at their first show in 1988 - a battle of the bands in Toronto. Instead of taking part in the battle, Page says the duo asked to play between bands.

"They gave us 10 minutes to go out and do shtick – play a **Johnny Cash** song, do a song we made up or just talk. Actually, that's still kind of what we do."

After three albums, an EP and a live greatest hits collection,

everything came together for the Barenaked Ladies in 1998 with the quadruple-platinum success of "*Stunt*."

The single "*One Week*" became a ubiquitous fixture on airwaves. There was no escaping the song which featured Page firing off disparate cultural references faster than **Dennis Miller** coked to the gills on uncut Bolivian marching powder. Turning off the radio offered no respite because the band had apparently perfected a satellite that beamed the ditty directly to your cerebrum, passing car radios or supermarket speakers.

A decade after the Barenaked Ladies began, the band had its first number one song, and were the reigning radio kings.

At the same time, **Jason Priestly** - actor, fellow Canadian and major BNL fan – began directing a documentary about the band's American tour - "*Barenaked in America*" In a lucky touch of kismet, Priestly and his cameras were with the band when "*One Week*" topped the charts. Later that year, the single earned a *Grammy* nomination and cemented the band's status as stars in America.

STEVEN PAGE > TYLER STEWART > ED ROBERTSON > JIM CREEGAN > KEVIN HEARN

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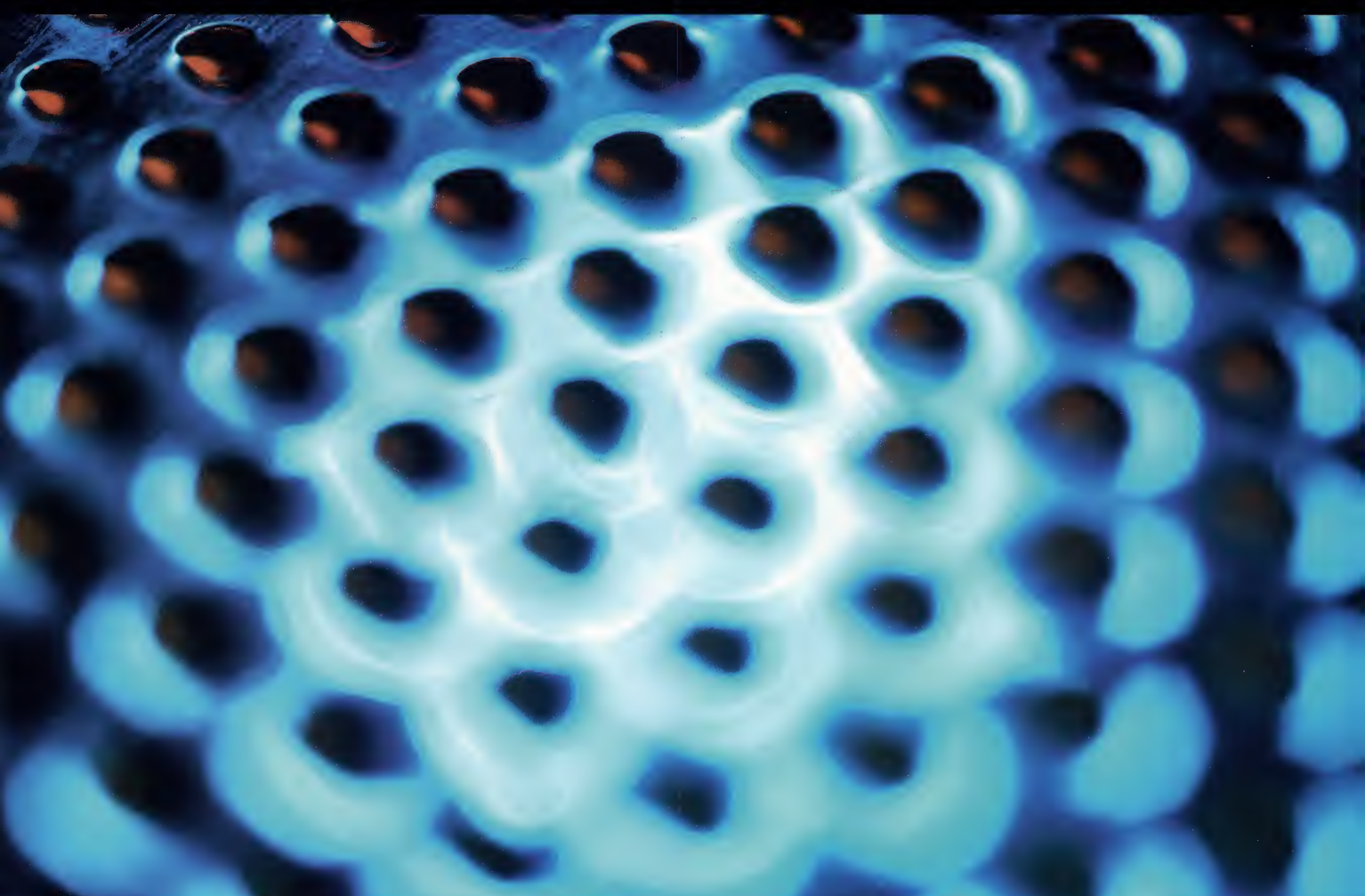

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The follow-up - "*Maroon*" - found the band dusting off the radio control satellite for the song "*Pinch Me*." The song helped the Barenaked Ladies earn another *Grammy* nomination. At this year's *Juno Awards*, the band took home honors for Best Group, Best Pop Album and Best Album.

Digital vs. Analog

The songs on "*Maroon*" began as demos on an *Apple G4* using *Logic Audio* software. In the studio, the band opted to record the album using analog tape instead of digitally. The choice, Page says, had more to do with the album's engineer than reservations about digital recording.

"Personally, I have no qualms about recording digitally. **Jim Scott**, who was our engineer on "*Maroon*," is a pro at cutting and pasting analog tape. Our thought was, why force him to do something else?"

The change from analog to digital, however, is inevitable, Page says. It will update the age-old story of bands starting their recording careers on a four-track recorder in their parent's basement.

"For the price of a four-track now, you could get a miniature Pro-Tools system. The sound quality you can get now - even at the consumer-level - is pretty amazing. Kids will still make music in their parent's basement, but pretty soon they'll be using a computer to do it."

Page says technology has changed the way he writes music, but it won't replace his low-tech editing process.

"As a songwriter, I have my own method, which relies partially on my memory. It's stupid and it's superstitious, but I always follow through with it. When I come up with an idea, if I don't remember it the next day, then it wasn't really worth it. If I remember it, I'll continue with it and write it down. It's important as an artist to realize all of your ideas aren't album worthy."

Technology makes it easy for anyone with three chords, a rhyming dictionary and a ProTools set up to sound like they know what they're doing. But just because you sound like a trained professional, Page says, doesn't make you one.

"My biggest warning to anyone starting out - you're on a path to embarrassment. Just because it sounds like a real record, doesn't mean it is a real record. Nothing beats playing in front of an audience to make you a better band. It's best to play live awhile before heading to the studio."

There's no telling when the Barenaked Ladies will come off the road and return to the studio to cut a new album. After a year of touring to support "*Maroon*," the band shows no signs it's easing off the tour bus accelerator.

Keep an eye out in your rearview mirror for a runaway bus with the radio control satellite strapped to the roof. It's the Barenaked Ladies, and they've come for your "*ass kebobs*." ✠

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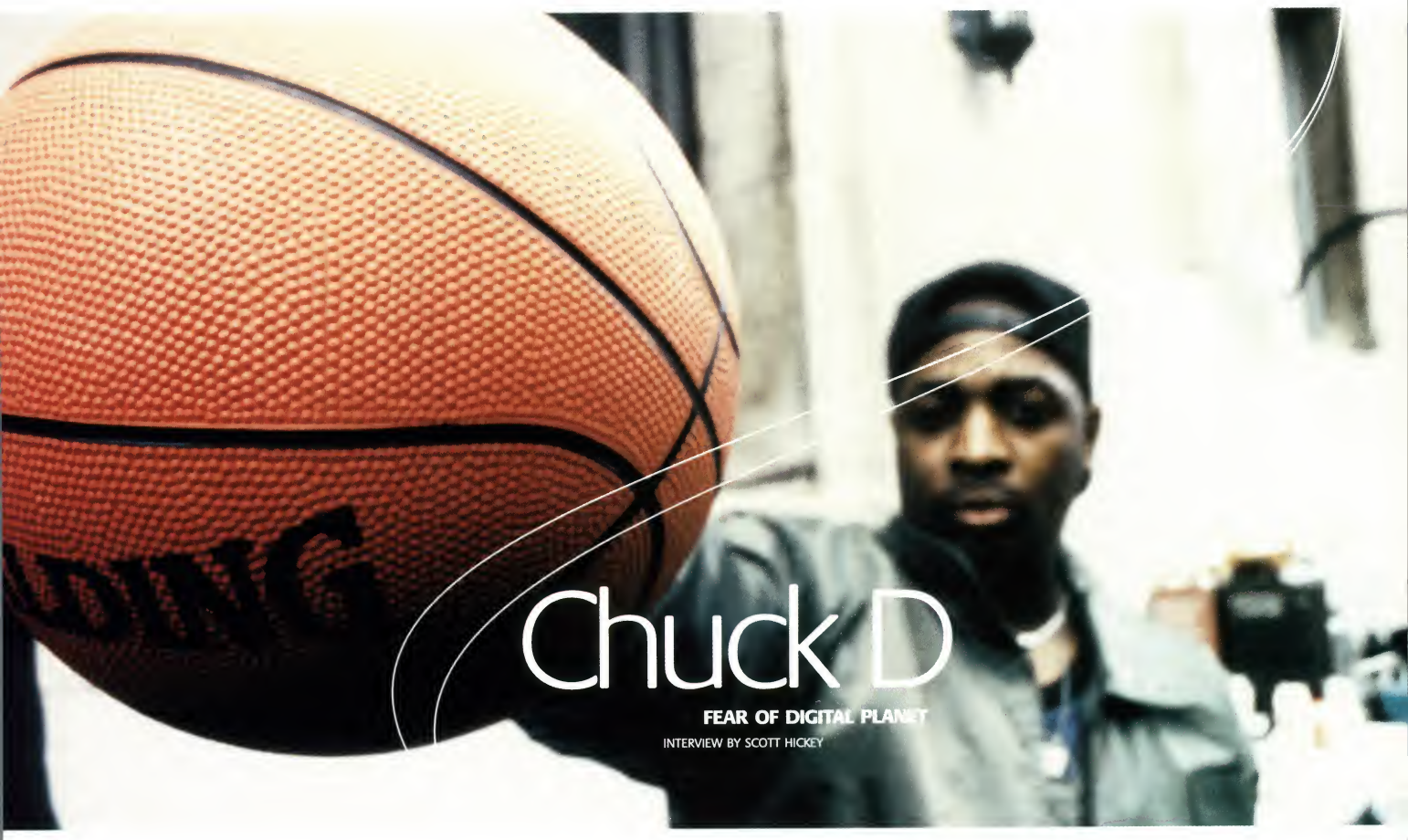

Chuck D

FEAR OF DIGITAL PLANET

INTERVIEW BY SCOTT HICKEY

Chuck D is looking for a hook up.

Forget drugs, he wants something harder to come by - a sweetheart deal on *Apple's Titanium Powerbook*. Unfortunately, I have no connections in the Apple underground to help the Public Enemy frontman.

"Damn, that's too bad. Too bad for me," Chuck says calling from his New York studio.

An outspoken leader of the digital rebellion, he's been hooked on Apple since buying a *G3 Powerbook* two years ago. It quickly became a permanent fixture on his lap.

"It's been my everything. It's probably my most cherished material possession. Then again, it's not a normal material item. It has a purpose."

From that laptop – his first - Chuck conducts a music revolution. On it, he designs Web pages, writes righteously indignant screeds, regularly hosts an Internet radio show and oversees business operations for his four Web sites. The computer keeps him in the flow.

"I've always had computers in the office and at home, but I was never around them consistently. I would go on the road, and lose touch without a computer. I could've bought any laptop, but I didn't want a *Compaq* or some damn thing. I'm glad I waited to get the *G3*."

It Takes a Nation

Chuck - born **Carlton Riendhour**- has spent a lifetime bucking trends as an intellectual provocateur and digital entrepreneur.

He began tormenting the status quo as the leader of hardcore rap-pioneers *Public Enemy – Chuck, Flava Flav, Terminator X* and the *Bomb Squad*. When the group bum rushed the scene in 1987, its incendiary mix of politicized rhymes, stinging samples and how-low-can-you-go-bass reached across racial lines and rewrote the rap rulebook.

"It Takes a Nation of Millions to Hold Us Back," "Fear of a Black Planet" and "Apocalypse 91...The Enemy Strikes Black" – came along at the right time, spoke from the heart and musically cemented a moment in time. Those albums helped prove hip-hop could raise social issues as well as raise the roof.

Almost 15 years later, *Public Enemy* still leaves trails blazing in it's wake. Before *MP3* and *Napster* were buzzwords, the group was posting it's music online. Then *Def Jam* – P.E.'s label – removed the music. The difference of opinion led to the group splitting from its long-time label. P.E. signed with *Atomic Pop*, which released the group's seventh album - "There's a Poison Goin' On..." – exclusively on the Web. The album was eventually sold in record stores, but was the first album released online by a major-label artist.

Since then, Chuck has become the yin to *Lars Ulrich*'s yang in the ongoing argument over the future of digital music sparked by *Napster*.

By now, *Napster's* story is well known. In 1999, college student **Shawn Fanning** wrote a program to trade music files. Downloading craze ensues. Recording industry unleashes the lawyers.

Regardless of what the court rules in the *Napster* case, music fans will have the last laugh, Chuck predicts.

"They won't stop file sharing. It's like trying to stop the rain. The genie is out of the bottle, and the bottle is busted in a million pieces. If *Napster* disappears, then everybody will go into the file sharing business. I'd like to see a situation where people start their own file sharing company. Hey, they can't come after everybody."

Instead of fearing the future, Mista Chuck says artists should embrace, not sue *Napster*. New technology is a genuine opportunity for artists to take control of their destiny. The days are numbered for big record companies controlling whose music is heard and whose is not.

"A parallel music industry is being built alongside the existing industry. The record labels call it parasitic, but so was the airline industry to the train industry. I call it progress."

But one thorny issue remains - If people can trade songs like baseball cards, how will artists get paid for their work? The way artists do business needs to change, Chuck says.

"I think it's a really stupid artist who thinks they're going to sit home and get a check. Those days are over. The artist has to be enterprising and take advantage of their situation. They have to get their music out to as many people as possible. They should give their music away free in exchange for free exposure. In the future, the artist will enjoy the freedom to do any and everything with their music as opposed to only being a recording artist."

He Got Game

Chuck's got his hustle on. Starting with *Public Enemy*'s home page – *www.public-enemy.com* - he's built an online empire that includes an online record label, a hip-hop news site and an underground rap Internet radio station.

Bringthenoise.com features two Internet radio shows hosted by Chuck. When the Shit Hits the Fans - broadcast Thursday nights - features music from unsigned and indie label hip-hop artists. Beats, Rhymes and Life - broadcast Saturday nights - is a weekly wrap-up of hip-hop news peppered with commentary from Chuck.

Chuck's third site – *Rapstation.com* - launched in late 1999. It's dedicated to developing and distributing new hip-hop music. In addition, the site features interviews and news focused on well-known rappers.

"We call it the ESPN of rap music and hip-hop because the site has news and information about the industry," Chuck says. "The site also gives new artists the tools to empower themselves and employ themselves in music industry."

Cheaper digital recording equipment is opening the recording studio doors to more people. Anyone with $5,000 can put together a Mac studio and record professional sounding music.

Some of those emerging artists are finding a home on Chuck's label, *SlamJamz.com*, which opened for business in 1996. The label went online this year, and now visitors can download free *MP3's* from new artists, rare *Public Enemy* cuts and more.

Chuck shows no signs of slowing down. His mouth and body are kept in a state of perpetual motion by a schedule packed with speaking engagements. Plus, he's still looking for that sweet deal on a TiBook. ✠

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Macs in **Brazil**

Words by Rogério Taira > Images by Everen T. Brown

Brazil is frequently seen as the home of the Amazon rainforest, a multi-ethnic nation where blacks are the majority and the country of soccer. One fact that surprises many is Brazil's highly technological landscape. Apple even has a subsidiary in Brazil.

The Brazilian market has gained visibility when it comes to advances in the high-tech industry, and has made impressive growth within the dotcom sector. Over the years, computers have become popular in Brazil, and that doesn't look to change soon. In the streets of Brazil's major cities, computer ad campaigns are prominent. Computers have become a commodity reaching beyond the most privileged citizens. During the past two years, Apple Brazil has played a key role in the so-called *'new economy.'* In a country where **IBM** and **Compaq** are considered *'big corporations'* because of their high prices, the arrival of a round-shaped computer with unlikely colors took the nation by storm.

Since then, Apple has been marketed to graphic designers, industry players and creative personalities, much the same way Apple has marketed itself around the world.

Jokes about iMac resembling toys surfaced soon after they were launched in Brazil. At events like **Fenasoft** - one of the most popular computer exhibitions in Brazil - Apple Brazil began the task of proving that the iMac is not a toy.
Today, the iMac, as well as the iBook, have become the darlings of the Brazilian advertising industry. In this case, Apple was considerably *'helped along'* with *'free advertising.'* Apple appeared alongside other products, which strengthened its commercial

RELIGION > ROMAN CATHOLIC, 70 PERCENT; PROTESTANT, 19.2 PERCENT; OTHER, 10.8 PERCENT. AFFILIATIONS NOT NECESSARILY MUTUALLY EXCLUSIVE. PRACTICE OF FOLK RELIGIONS AND AFRO-BRAZILIAN CULTS BASED ON ANIMIST BELIEFS AND SLAVE AND INDIAN TRADITIONS--SUCH AS UMBANDA AND CANDOMBL--WIDESPREAD AMONG ALL ETHNIC GROUPS.

appeal. Authorized dealers were key in advertising Apple products, because Apple Brazil does not yet have an online store.

Those inclined to use Windows regularly spread rumors that Apple was about to go bankrupt, and therefore no one ought to buy Apple products. What those Windows users did not anticipate was that the worst was over for Apple and the iMac was destined to be more than just another pretty computer. Apple is slowly regaining lost ground from the dark days before the second coming of **Steve Jobs.**

Recently, Apple Brazil launched a Cube advertisement on the major Brazilian TV channel. In addition to the television campaign, which surprised Brazilians, Apple has also invested in advertising with cable TV networks, best-selling magazines, outdoor spots, on buses and in theatres. Apple's attempt to reach targeted niches is quite clear.

According to many users, Apple's campaigns for cable TV networks are too *"American"* for the Brazilian audience. Despite that, the brand is gaining in popularity.

Unfortunately, Apple Brazil doesn't disclose even an approximate number of how many iMacs there are in Brazil. Any number they gave would probably be inaccurate anyway. High computer prices in Brazil have created a significant demand for contraband. PowerBooks and PowerMacs are considered too expensive for the average Brazilian, and are sold on the black market.

Only recently did Apple Brazil launch AppleLine, a service which allows the purchase of Apple products by phone. The service has helped increase legitimate sales.

POLITICS > RETURNED TO DEMOCRATIC CIVILIAN GOVERNMENT IN 1985 AFTER MORE THAN TWO DECADES OF MILITARY RULE (1964-85). PRESIDENT FERNANDO COLLOR DE MELLO WAS ELECTED IN NOVEMBER 1989 AND TOOK OFFICE ON MARCH 15, 1990, THE FIRST DIRECTLY ELECTED PRESIDENT IN TWENTY-NINE YEARS.

It should also be noted that Apple's policy for dealers is indeed one of its weakest points. Apple has different policies for its dealers, which are currently divided into authorized and professional units. Apple receives many complaints about the constant changes to this policy.

Apple allows iMacs to be sold in specialized computer stores, but also in supermarket chains. As with Apple's relations with dealers in the United States, miscommunication between dealers and the company has been a source of friction.

Brazilian Sales: Growth Market

Microsoft does not disclose its sales figures, but representatives say sales of Office for Mac have grown sharply, and are expected to continue. **Macromedia's** sales of applications for Mac - **Flash, Dreamweaver, Fireworks and Freehand** - represent *"between 3% to 5% of (our) total sales,"* said **Eduardo Souza**, Macromedia's country manager.

The number is significant, considering Brazil did not allow the import of computers from 1976-92. During that time, a home grown Mac clone company named **Unitron** created something called the **Mac512,** by reverse engineering the Macintosh ROMs, and creating a version they could legally use in Brazil.

However, Online Apple site *Applefritter.com* quotes a former Apple engineer as saying:

"I was working as an engineer at Apple when the Unitron Mac clone came out. A couple of them were brought to Cupertino and disassembled to see how they did it. As I remember, the ROMs were not reverse engineered *(much to the relief of Apple)*, but were instead a copy of the real ROMs with a few bytes changed. The fun

ECONOMY > BRAZIL'S MAJOR TRADING PARTNERS ARE THE UNITED STATES, GERMANY, SWITZERLAND, JAPAN, THE UNITED KINGDOM, FRANCE, ARGENTINA, MEXICO, AND CANADA. EXPORTS REPRESENT 7.3 PERCENT OF BRAZIL'S GROSS DOMESTIC PRODUCT AND INDUSTRY ACCOUNTS FOR ABOUT 41 PERCENT, A PATTERN FOUND IN SOME DEVELOPED COUNTRIES.

part of the story is that this was proven because the Apple ROMS contained things like engineer's license plate numbers and kid's names - still there in the cloned ROMs. This made it easier to get the unsympathetic Brazilian government to enforce Apple's rights.

"I'm certain that the unit shown at the meeting I attended had the ROM copies. It may be possible that later clones had a reverse engineered ROM, but I doubt it. The copied ROM did have a few bytes changed so that it wouldn't remain the same."

Apple convinced the US government to take action against Brazil, which bore down on Unitron, halting production.
Since then, applications for Macs represent 25% of Adobe sales, according to an Adobe spokesperson. **NW Sistemas**, a leading Brazilian vertical solutions provider, has reported an increase of approximately 50% in its Mac applications sales, according to **Sérgio Moura**, NW Sistemas' director. Despite the significant growth, the company's sales could be boosted if authorized dealers advertised Brazilian developers' products better.

In the application development department, Brazil recently helped **Rapster** become one of the most popular Mac applications. Rapster, a Napster client for Mac OS, was developed by **Overcaster Family**. **The Marlin Project** - QuickTime Streaming Server for Mac OS Classic - was another significant project which has gained worldwide recognition.

In the hardware industry, there is a strong market for *G3/G4* upgrade cards, with **Newer Technology** and **Sonnet** being distributed by **Passport Distribuidora.** Sales of the *PCI 7300-9600*

POPULATION > ALTHOUGH NEARLY HALF OF BRAZILIANS ARE IN THEIR MID-TWENTIES, A FRACTION UNDER FOURTEEN YEARS OF AGE HAS FALLEN FROM 43 PERCENT TO 34 PERCENT, WHILE FRACTION OVER SIXTY YEARS OF AGE HAS RISEN FROM 4 PERCENT TO 8 PERCENT.

line are increasing too. Sales of the *beige/blue G3* began not long ago, according to **Fernando Pereira,** Passport Distribuidora's director. Sales of the *6xxx model*, however, are weak; as are sales of the *4400*, *7220* and of PowerBooks.

"There are only a few machines *(4400-7220)* in Brazil. There is strong demand for 7200, recently launched. Sales of these products are going to be good," Pereira added.

Brazilian Internet Usage

Earlier this year, Brazil saw a boom of free Internet Service Providers. The free ISP was regarded skeptically by some specialists. In a country where an Internet link is very costly, advertising online is not considered sufficient to pay the cost overlay. Now, the country is seeing the first signs of life for broadband connection through DSL technology. Speedy Access will soon appear by the Spanish Telefonica company in São Paulo city, with package speeds 256Kbps, 512Kbps and 2Mbps for download stream. However, when Speedy was released, the public did not know if it was compatible with the Mac platform. Technically proficient users assumed that the new service would compatible using TCP/IP protocol, but many were told by the company's technical support that the service was not Mac compatible.

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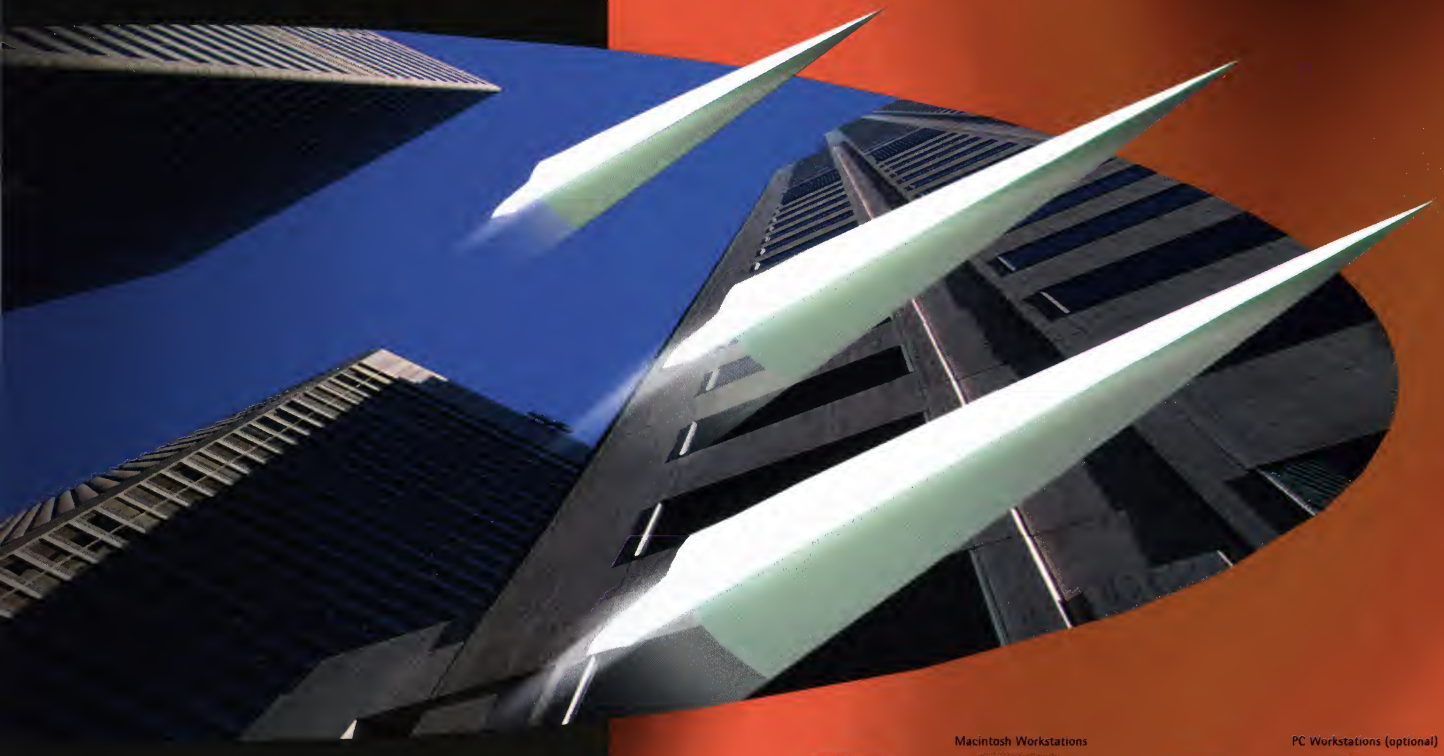

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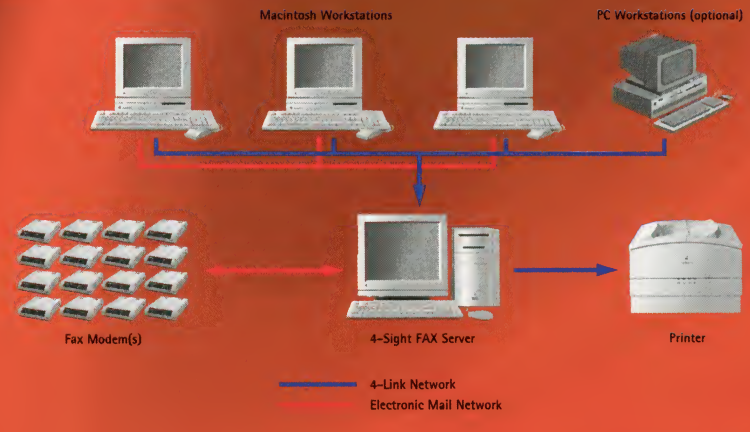

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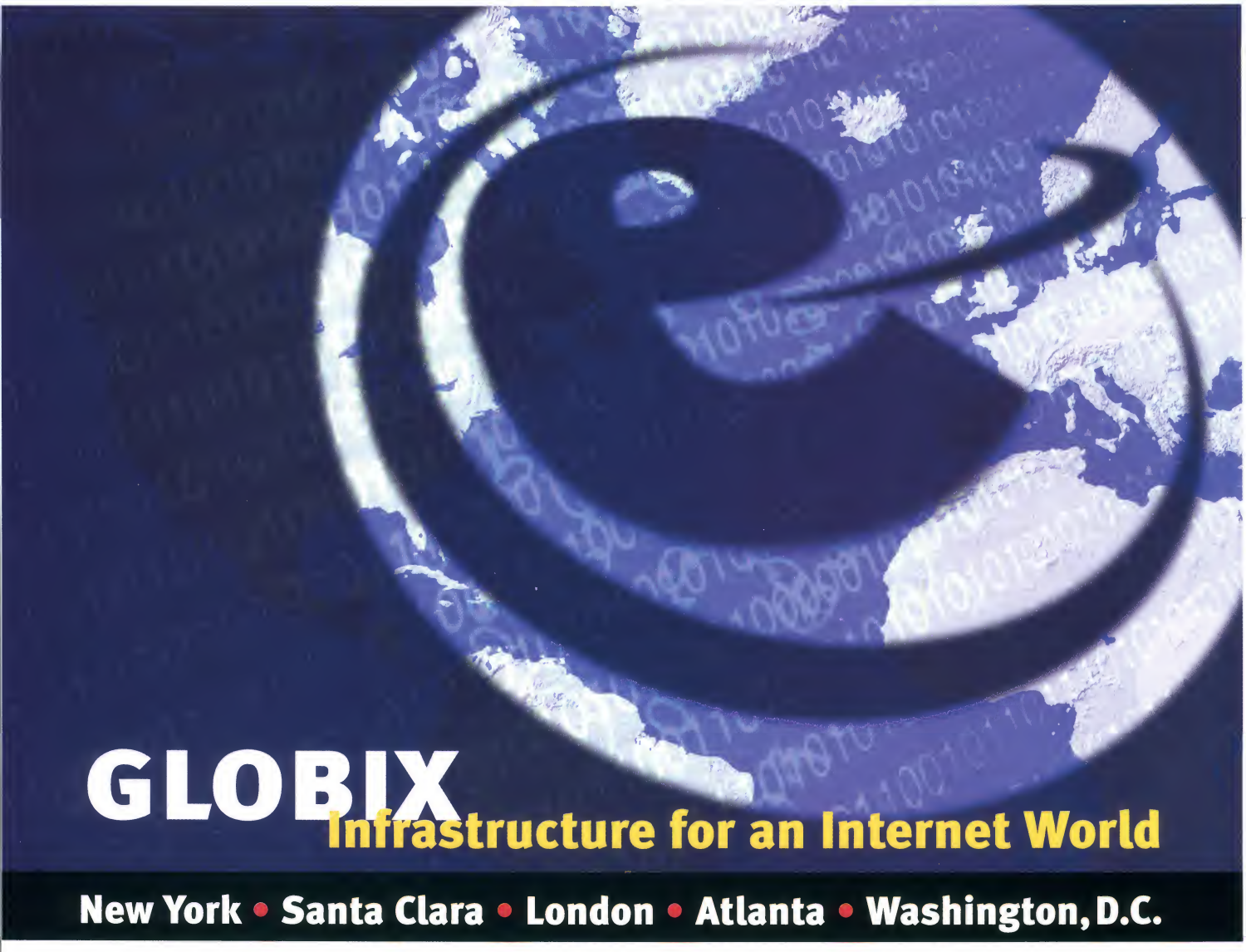
Facts About Brazil

Brazil endured three centuries of Portuguese rule. Brazil shares borders with every South American country except Ecuador and Chile. The population is roughly 172,860,370. Eighty percent of the population is Roman Catholic, the largest Catholic population in the world. There are 26 states that comprise the Federal Republic of Brazil.

Brazil is well known in South America for its large economy and efficient workforce. In 1999, the GDP real growth rate was 1.7%. 36% of the economy is industrial, 50% services and 14% agriculture. Budget revenues are $151 billion. The workforce in Brazil numbers 74 million people. The United States is the largest trading partner of Brazil. Brazil exports 18% of its products to the US. Argentina is the second largest partner, with Brazil exporting 13% of goods there. Brazil is the only Portuguese speaking nation in South America.

Brazil is the largest and most populous nation in South America, as well as the fifth largest country in the world. Brazil became independent from Portugal in 1822. The economic leader of South America, Brazil is the ninth largest economy in the world. The economy outweighs that of all other South American countries, with an admirable single-digit inflation. ✠



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Mari Eastman

Creating Art With Letters

WORDS BY SCOTT HICKEY

MARI EASTMAN WANTED TO LEARN TO READ AT A YOUNG AGE, BUT HER MOTHER ASKED HER TO WAIT TILL SCHOOL BEGAN. HER MOTHER - WHO IS JAPANESE - WASN'T CONFIDENT ENOUGH IN HER ENGLISH SKILLS TO TEACH HER DAUGHTER. IN THE MEANTIME, MARI INVENTED HER OWN ALPHABET USING IMAGES INSTEAD OF LETTERS.

"We always had a stack of scrap paper by the television that my dad would bring home from work. Right up until my teens, me and my sister - who is now a video artist - would draw horses, mermaids, little animals riding horses and made-up animals."

Eastman has never sat still for long. She moved from *Berkeley, California* to *Singapore* when she was 9, and moved to *Tokyo* for her senior year of high school. She came back to the States to attend *Smith College*.

Her art is restless too. She constantly changes the subjects of her paintings - animals, people, abstracts and landscapes, as well as her choice of media.

"I grab what's easiest. Anything that involves too much prep and I start to feel overwhelmed. That's why I'm a painter, I guess, it's immediacy. Another thing about switching media, it's constantly fresh and challenging.

Last year, Eastman met with fashion designer **Kathy Kemp** and hat maker EUGENIA KIM. The three decided to collaborate.
"What we'll actually make is open-ended," Eastman explained. "Right now, I'm airbrushing shirts. I'll send them to Kathy and she'll construct them. Eugenia and I are also going to work together to make hats. I guess they are the sculptors and I'm the decorator."

Making a living making art is tough, but Eastman recently quit her day-job to devote herself entirely to art. "If making art wasn't fun there was no way I could drag my tired ass to the studio to make it. The appeal of going home, making dinner and watching X-File reruns would be irresistible." ✠

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Macintosh Business Systems, Inc. ..... 145 .....
MacSense Connectivity, Inc. ..... 208 ..... www.xsense.com
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Mediafour ..... 63 ..... www.mediafour.com
My Mac Career ..... 181 ..... www.mymaccareer.com
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Type Directors Club ..... 176 ..... www.tdc.org
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VST Technologies, Inc. ..... 59 ..... www.vsttech.com
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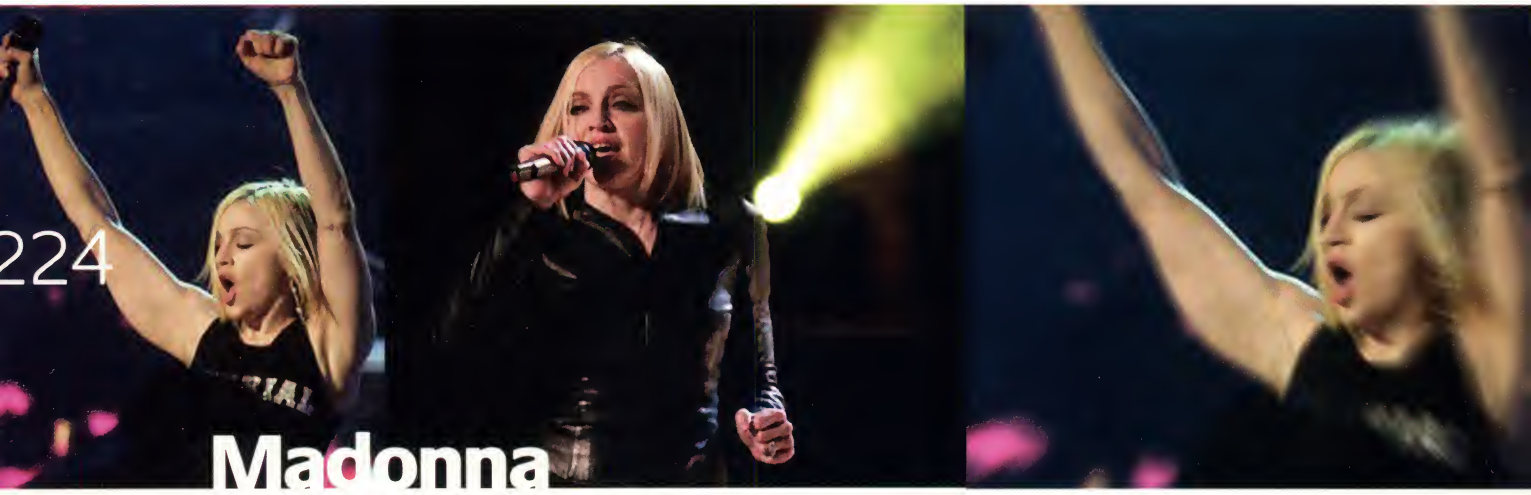

Madonna

IMAGES BY GARY HERSHORN > WORDS BY RON MWANGAGUHUNGA

LAST SEPTEMBER, ONE OF THE BIGGEST ENTERTAINERS IN THE WORLD JOINED IN A PARTNERSHIP WITH APPLE COMPUTER. MADONNA AND HER IMPRINT MAVERICK ENTERTAINMENT ANNOUNCED THAT ALL TEN TRACKS ON HER MULTI-PLATINUM CD 'MUSIC' WOULD BE AVAILABLE AT HER OFFICIAL WEB SITE MADONNAMUSIC.COM ON APPLE'S QUICKTIME FORMAT.

At the time, **Caresse Henry**, Madonna's manager, said:

"Madonna is very excited about the launch of her web site as it affords both direct contact with her fans as well as serving as another avenue for her creative output."

A notorious perfectionist, Madonna's choice of the Apple product reinforces the generally held industry perception of *QuickTime* as the standard for high quality audio streaming over the Web.

Philip Schiller, Apple's Vice President of Worldwide Product Marketing said, "We're thrilled Madonna has chosen *QuickTime* to bring Music to the web and, like her prior work, the album is sure to be an instant smash."

As expected, MUSIC has several singles already racing up the Billboard Hot 100 and Dance charts, including "What It Feels like for A Girl," and the title track "Music." The album is also multi-platinum. The MADONNA DROWNED WORLD TOUR 2001 sold out in its first five markets within a week. Apple's deal with Madonna is especially shrewd, as she is a guaranteed international draw. Many more people will be exposed to *QuickTime* because of Madonna.

The special relationship with Apple, however, is not Madonna's only venture into the digital space. The Material Girl has made several deals with multimedia goliath *AOL-Time Warner* this year. *AOL-Time Warner*, through Warner Brothers, owns Madonna's record label *Maverick*.

In early May, Madonna was announced as the first voice in the AOL customized voice "You've Got Mail" campaign. Since then, celebrities like **Jackie Chan**, The West Wing's **Rob Lowe**, **Destiny's Child** and **Sylvester Stallone** have all followed her lead. Now *AOL-Time Warner*'s nearly 30 million subscribers can, if they chose, receive their message notice from The Queen of Pop.

Madonna participated in her first online chat at AOL on September 18, 2000. In the chat, among other things, she revealed that her and her daughter **Lourdes** sing **Brittany Spears** songs together. While Madonna had been an AOL subscriber before, this marked her first public stroll across the digital dance floor.

Her next strategic maneuver, a couple of months later, changed the Web forever. On November 28, 2000, Madonna delivered a record breaking Web-only concert broadcast over MSN. *Microsoft* spent an estimated $30 million dollars in promotion to underwrite the concert. *Akamai Technologies* provided the bandwidth for the concert, and despite poor quality sound and images, the free concert was breathtaking, and delivered nine million viewers from around the world.

Madonna, never one to stay too long in a situation, returned to do business with AOL.

The MADONNA DROWNED WORLD TOUR 2001 will have highlights, video clips, interviews and a backstage glimpse of the tour broadcast over the *AOL Music Channel*. Now that AOL has merged with Time Warner and convergence is just around the corner, Madonna's multimedia forays are taking on greater importance.

In addition to seeing highlights of the tour on AOL, the company is promoting and selling tickets online. Caresse Henry said of the project:

"Madonna could not be more enthusiastic about returning to the stage this summer. I think that participating with AOL on this tour is a great way to connect with her fans."

Now, nearly 30 million AOL subscribers will have the option to check out Madonna online or, if they buy a ticket via AOL, in concert.

Kevin Conroy, Head of AOL Music, said of the partnership:

"Participating in the MADONNA DROWNED WORLD TOUR 2001 will bring tremendous benefits to the millions of users of AOL's brands who love everything about Madonna. This tour promises to be a blockbuster, and we look forward to working on similar promotions with other artists. AOL Music is proud to align with such an incredible and innovative performer to promote her tour across America and Europe."

Paving the way for others, as always, Madonna Thinks Different. ✠

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